DYSPEPSIA.

BY

E. P. MILLER, M.D.

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DYSPEPSIA:

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VARIETIES, CAUSES, SYMPTOMS, AND TREATMENT BY HYDROPATHY AND HYGIENE.

BY

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PREFACE.

In offering to the public this little treatise on Dyspepsia, the Author has aimed to present in a condensed form a few scientific hints in relation to the character and function of the digestive organs, the properties of different classes of foods, and the manner in which each is digested. He points out the several phases of digestive derangements; enumerates some of the causes which produce them; and lays down plain and easily practiced rules of hygiene, which tend to alleviate suffering and restore to health.

The subject is one of great importance, and to discuss it fully in all its bearings would require a volume many times the size of this. The most important points, however, are brought forward, and it is believed that every dyspeptic will find hints which will well repay perusal; and if the hints are accepted and the teachings followed, permanent relief from many aggravating troubles will result.

Good health depends upon good blood, and good blood, upon the healthy digestion of wholesome food. Secure this, and much is done which will add to the happiness of the race.

E. P. M.

NEW YORK, July, 1870.

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DYSPEPSIA.

INDIGESTION.

Dyspepsia and Indigestion are usually regarded as the same disease. It is true that dyspepsia always includes indigestion, but indigestion does not necessarily embrace dyspepsia.

Any interference in the transformation of food into blood, or in its assimilation by the tissues, will give rise to indigestion. Almost every disease to which the human system is subject is attended with more or less of this difficulty. All forms of fever, inflammation of any organ, whether acute or chronic, cancers, ulcers, diseases of the brain, heart, lungs, liver, kidneys, and genital organs, and also of the bones, muscles, and nerves, are usually attended with disturbed digestion.

This disturbance is also reciprocal, for the relation of the digestive apparatus to the brain and other organs of the body, by means of the circulatory system, and through the cerebro-spinal and great sympathetic nerves, is so intimate that any disturbance in the function of digestion is soon made manifest by impairment of function in other organs. Few people are aware of the importance of good digestion, and its concomitant, good blood, in promoting the health and happiness, and prolonging the life of man. Neither do they realize that bad digestion and impure blood are the occasion of untold suffering, sorrow, and death.

In order to have the mind active, the thoughts clear, the judgment and reason sound, and the memory retentive, the digestion must be unimpaired; and, even though the mental faculties remain apparently intact, it is not uncommon to find the special senses perverted by imperfect digestion. The eyesight becomes dimmed, vission irregular, objects assume unnatural forms, specks, either dark or light, or of various hues, seem floating in the air, and colors frequently appear changed, simply from deranged digestion. The sense of hearing, too, is often diminished, or greatly intensified, and strange noises seem sounding in the ears, when indigestion is the only cause; the senses of smell and taste are also greatly modified, often becoming so perverted that the natural properties of various substances seem entirely lost.

Violent convulsions in children are frequently induced by crude, undigested food. Chorea and epilepsy sometimes result from the same cause. Numbness of the feet, of the fingers, and of the palms of the hands, and even partial paralysis, is often due to indigestion. Some people experience severe pain in the arms, in the knees, between the shoulder-blades, etc., whenever they take food; this is due to derangement of the digestive organs. Indigestion is also a frequent cause of palpitation, hurried breathing, dry cough, and irregularity of pulse; this is consequent in a great degree upon the action of the pneumo-gastric nerve which supplies the lungs, stomach, heart, and liver, with nerve power; and any one of these organs being affected, the others immediately feel the influence, both from the sympathy of contiguity, and their oneness of nervous force. It also leads to serious difficulties of the heart and lungs. Bright's disease of the kidneys is said to be a disease of the blood due in a great measure to indigestion.

Although disease of any organ of the body may cause indigestion, yet the disease termed Dyspepsia, consists essentially in those chronic functional derangements of the digestive organs which leave behind them no marked change in the tissues of the organs. We shall, however, refer to some of the accompaniments of dyspepsia, such as inflammation, ulcerations, piles, etc., in which changes in the structure inevitably occur.

Before entering fully into a discussion of the nature of those difficulties which come under the head of dyspepsia, let us consider, briefly,

First: The object of digestion.

Second: The properties of substances digested.

Third: The character and functions of the different organs concerned in the digestive process.

OBJECT OF DIGESTION.

As animals alone digest and by means of digestion they grow and develope—as well as repair the waste which is constantly taking place in their bodies—it is self-evident that the object of digestion is the growth and developement of the animal organism and the maintenance of animal life.

PROPERTIES OF SUBSTANCES DIGESTED.

A discussion of the properties of substances digested is much more difficult, and requires the consideration of things lying far back of articles used as food.

All objects or substances which possess life are formed with organs, or sets of organs, so arranged as to manifest and maintain that life: These bodies are called Organic. All objects or bodies not included in this class are called Inorganic.

Both organic and inorganic bodies may be resolved by chemical analysis into what are termed simple or ultimate elements; so-called because they appear to be formed of only one kind of matter, and have hitherto resisted all attempts at further decomposition. There are about sixty-five of these ultimate elements found in the inorganic world, while only about seventeen have as yet been discovered in the organic.

Inorganic bodies are formed by the union or combination of two or more simple elements; as oxygen and hydrogen which, in certain proportions, form water; or two simple elements may combine, and these unite with a third to form another compound; and thus the combinations and re-combinations, and the substances formed from them, are almost innumerable.

The chemist in his laboratory may bring these elements together in such proportions as to form various inorganic substances, but the formation of organic bodies is based upon entirely different operations. All dead, and inorganic matter is subject to laws, physical, and chemical, but in the organic world vital laws are superadded, and these latter mould and shape the destiny of organic bodies in a manner seemingly independent of other laws.

Organic bodies are invariably the result of nutrition and growth. There is in every organic body an inherent germ, or vital principle, which has been infused into it from some source antecedent to itself, and which, under certain conditions, enables it to appropriate, either from inorganic, or from decomposed organic matter, the materials required for the developement of its own structure.

Organic bodies are divided into two classes, animal and vegetable. Vegetable substances derive their sustenance directly from the inorganic world; animals, from the organic. Vegetables absorb nutriment from without, animals, from within, the body. "It is the function of vegetables to store up force; of animals, to liberate force." Vegetables take up from the soil and atmosphere the ultimate elements requisite for their nutrition; animals cannot subsist upon the simple elements; before these elements can be appropriated by the animal kingdom they must be partially organized by the vegetable kingdom, into products called Proximate Elements, or Alimentary Principles, and these principles, still farther organized into alimentary substances, or food. Vegetables are simple in structure, stationary as to locality, and manifest the lowest order of life; the structure of animals ranges from the very simple to the most intricate and complicated, and an inherent power of motion is the distinguishing feature of animal life.

The more highly organized, or the greater the number of organs an animal possesses, the greater its activity and intelligence, and the greater the variety of food it requires. Man's food should contain the simple chemical elements which enter into the composition of his body, combined in such proportions as to form the various proximate elements, or alimentary principles requisite for the formation of his tissues.

These principles comprise mucilaginous substances, saccharine and amylaceous, or starchy, matters, the ligneous or woody fibre, pectine or vegetable jelly, acidulous matter, stearine, margarine, oleine, fibrine, albumen, caseine, gluten, colline, chondrine, and gelatine, together with common salt, earthy phosphates, potash salts, and ferruginous compounds. These proximate elements are combined in various proportions, to form the alimentary substances, or food, such as grains, meats, fruits, and roots.

ELEMENTS OF MAN'S BODY.

By careful analysis it has been found that in the composition of a human body weighing one hundred and fifty-four pounds there are of

ULTIMATE ELEMENTS

	lbs.	oz.	gr.		lbs.	oz.	gr.
Oxygen, a gas,	111	0	0	Fluorine, a gas,	0	2	0
Hydrogen, a gas,	15	0	0	Chlorine, a gas,	0	2	382
Carbon, a solid,	21	0	0	Iron, a metal,	0	0	100
Nitrogen, a gas,	3	9	0	Sodium, a metal,	0	2	116
Phosphorus, a solid,	1	12	190	Calcium, a solid,	2	0	0
Potassium, a metal,	0	0	290	Sulphur, a solid,	0	2	219
Magnesium, a metal,	0	0	12	Silicon, metallic,	0	0	2

These ultimate elements combined, form the proximate principles of which the tissues and fluids of the body are composed. In a body weighing one hundred and fifty-four pounds there are of

PROXIMATE ELEMENTS

	lbs.	oz.	gr.		lbs.	oz.	gr.
Water	111	0	0	Chloride of Potass.	0	0	10
Gelatine	15	0	0	Sulphate of Soda	0	1	170
Fat	12	0	0	Carbonate of Soda	0	1	72
Phosphate of Lime	5	13	0	Phosphate of Soda	0	0	400
Carbonate of Lime	1	0	0	Sulphate of Potash	0	0	400
Albumen	4	3	0	Peroxide of Iron	0	0	150
Fibrine	4	4	0	Phosphate of Potash	0	0	100
Fluoride of Calcium	0	3	0	" of Magnesia	0	0	75
Chloride of Sodium	0	3	376	Silica	0	0	3

By referring to the list of proximate elements of food, it will be seen that they differ somewhat from the proximate elements of the body. This is owing to the fact that some of the alimentary principles undergo a change in the process of digestion, or in the blood, by which means they are converted into the proximate elements of the body; for example, caseine,—which is an alimentary principle,—is changed in the stomach to albuminose, which is absorbed by the blood, and, in that fluid, converted into fibrine and albumen, both of which are proximate elements of the body. Other substances also are changed in a similar manner; gluten is identical with fibrine, and, as such, enters into the tissues of the body.

ALIMENTARY SUBSTANCES.

These are variously classified but we adopt Dr. Prout's arrangement, in which all foods are divided into four classes or groups; the Aqueous, the Saccharine, the Oleaginous, and the Albuminous. The aqueous group comprises all those nutrient elements held in solution or suspension in a fluid form. Oxygen and hydrogen enter largely into this group. The saccharine group includes sugars, starch, gums, fruits, and various acids. This class contains from 30 to 50 per cent. of carbon. The oleaginous group includes fats, oils, butter, etc., and contains a still larger proportion of carbon. The albuminous, includes those alimentary compounds which contain nitrogen, called nitrogenous, such as fibrine, albumen, caseine, gelatine, gluten, etc.

Included in these groups may be found all the different substances required as food for man, and all the elements entering into the various organs and tissues, whether solid or fluid, of the human body. Good blood can be made from each of these different classes of food, but the various tissues in the body require a variety of food to supply the elements of those tissues. From one class of food heat is derived, from another muscular fibre, while others supply materials for the formation of bone, blood vessels, brain, etc.

The following table showing the composition of some of the most common and most nutritious articles used as food, is taken from an Inventory of the Food Collection found in the Museum at Kensington Gardens, London, England.

100 parts	Water.	Gluten.	Albuminous matter.	Gelatine.	Starch.	Sugar.	Gum.	Fat.	Woody fibre.	Animal matter.
Wheat	14.0	12.8	1.8	—	59.7	5.5	1.7	1.2	1.7	1.6
Rye	13.0	10.8	3.1	—	51.1	3.7	5.3	0.9	10.3	0.4
Oats	13.6	—	17.0	—	39.7	5.4	3.0	5.7	12.6	3.0
Barley	14.0	12.8	—	—	48.0	3.8	3.7	0.3	13.3	4.3
Corn	14.0	12.0	—	—	60.0	0.3	—	7.7	5.0	1.0
Rice	13.5	6.5	—	—	74.1	0.4	1.0	0.7	3.3	0.5
Buckwheat	14.2	8.6	—	—	50.0	2.0	2.0	1.0	20.4	1.8
Beans	14.8	—	24.0	—	36.0	2.0	8.5	2.0	9.2	3.5
Peas	14.1	—	23.4	—	37.0	2.0	9.0	2.0	10.0	2.5
Potatoes	75.2	—	—	—	15.5	3.2	0.4	0.2	3.2	0.9
Turnips	90.5	—	1.1	—	—	4.0	1.5	—	2.4	0.5
Beets	83.0	—	2.0	—	—	10.0	1.0	—	3.0	1.0
Carrots	87.5	—	0.6	—	—	6.4	1.0	0.2	3.3	1.0
Parsnips	82.0	—	1.2	—	3.5	2.9	0.7	0.5	8.0	1.0
Cabbages	93.4	—	1.8	—	0.6	—	2.9	—	0.5	0.8
Beef	50.0	—	8.0	7.0	—	—	—	30.0	—	5.0
Mutton	44.0	—	5.5	7.0	—	—	—	40.0	—	3.5
Veal	62.5	—	9.0	7.5	—	—	—	16.5	—	4.5
Milk	86.0	—	5.0	—	—	4.5	—	3.5	—	1.0

The subjoined table shows the amount of carbon in one pound of each of several substances; also the maximum of labor that one pound, digested and oxidized in the body, will enable a man to perform, estimated in tons raised one foot high; and the amount of dry muscle or flesh which one pound will produce.

	Carbon.	Labor.	Muscle.
Wheat	7.00 oz.	477 tons.	2.25 oz.
Oats	6.35 "	488 "	2.75 "
Barley	6.00 "	—	—
Corn	5.75 "	—	—
Rice	6.90 "	466 "	1.00 "
Beans	5.75 "	—	—
Peas	—	468 "	3.75 "
Potatoes	2.00 "	124 "	100 grs.
Carrots	—	64 "	42 "
Cabbages	—	52 "	126 "
Beef	—	177 "	2.33 oz.
Veal	—	145 "	2.50 "
Milk	—	78 "	0.80 "

Nitrogen is the essential element in nutrition; the basis of all animal tissue. Muscle is identical with albumen, fibrine, caseine, and gluten, these substances having been rendered soluble by digestion, and, in the form of albumen, entered the blood. Wheat is rich in nitrogen, and resembles milk and blood more nearly than any other substance. Gluten is the nitrogenous part of wheat; this is found in the bran; the whitest superfine flour, therefore, is almost entirely wanting in this element. Wheat may be ground very fine—the finer the better for all delicate stomachs—if only it is not bolted. Gluten and starch exist in wheat in just the right proportions to satisfy the demands of the system, and for this reason bread may well be called "the staff of life." Starchy, saccharine, and oily foods, furnish material for heat and respiration; nitrogenous, for tissue-formation. Many physiologists are of the opinion that only those foods which contain nitrogen are capable of being converted into blood and forming the organized tissues of the body; and that it is the conversion of such foods into tissue that generates animal heat. Hence they argue that non-nitrogenized foods such as sugar, starch, oil, etc. are not required in the animal economy. It will be seen from the foregoing tables however, that wheat, corn, beans, rice, potatoes, etc. not only contain large quantities of nitrogen, but they also contain sugar, starch, and fat, and therefore furnish the requisite material for tissue-formation and also for respiration.

We give below a table stating the quantities of several vegetable substances from each of which an equal supply of nitrogen is obtained.

	lbs.	oz.		lbs.	oz.
Wheat flour	2	1	Beans (dry)	1	5
Rye	2	3	Peas (dry)	1	5
Oatmeal	1	13	Potatoes	20	13
Barley meal	2	6	Turnips	17	13
Cornmeal	2	9	Carrots	31	4
Rice	4	13	Parsnips	15	10
Buckwheat	3	10	Cabbage	10	6

DIGESTION.

Before the alimentary substances can be used in the system they are obliged to pass through a process of preparation called Digestion, and this brings us to the consideration of our third topic.

CHARACTER AND FUNCTIONS OF THE DIFFERENT ORGANS CONCERNED IN THE DIGESTIVE PROCESS.

This process is carried on by a set of organs, called the digestive apparatus, arranged for, and adapted to, this work exclusively.

In the human system there are no less than five distinct organs engaged in this process; the mouth, the stomach, the liver, the pancreas, and the intestines, each of which secretes from the blood a peculiar fluid or juice, the chemical constituents of which differ from those of every other fluid of the body, and each of these fluids has an especial part to perform in rendering the food eaten, fit for the formation of tissue.

Digestion, therefore, includes several distinct processes, viz., Mastication, Insalivation, Deglutition, Chymification, Chylification, and Absorption.

MASTICATION.

A most important law obtains throughout our entire physical being, which compels the proper performance ot the function of each organ in order to maintain the health of the whole.

Mastication is the function for which the teeth were designed, and is indispensible to good digestion in adult life. If food is hastily swallowed and "man feeds like a boa-constrictor," other organs are compelled to perform an undue and unnatural amount of work; and not only this, but the insalivation which accompanies mastication, and which is most essential to the digestion of many foods, is wanting; and thus this non-performance of natural labor, if continued, necessarily engenders derangement and disease. Children are born without teeth, and should not, therefore, be fed upon food which requires mastication. Milk is the only substance yet discovered which contains all the elements of nutrition, and as milk is the food provided by nature for children, they should have no other until they have a sufficient number of teeth to enable them to masticate, which is usually between the tenth and twelfth month.

Many children are annually destroyed and many are made permanent dyspeptics by a violation of this express indication of nature. Feeding babes upon biscuit, corn-starch, fine flour preparations, etc., no matter how nearly liquid they may be, is productive of great harm; it occasions enfeebled digestion, constipation, bowel difficulties, skin diseases, and numerous accompanying ills. The system is not prepared either for the digesting or assimilating of such food until the teeth are sufficiently developed for the performance of the first and very important part of the digestive process.

INSALIVATION.

This process takes place during mastication, by means of a fluid called saliva, which flows from the salivary glands by which it is secreted.

The large number of these glands is an evidence of the importance of saliva in the animal economy. The mucous membrane of the mouth is almost literally studded with them. They are arranged in pairs, one of each pair on either side of the mouth. Three of these pairs are of considerable size; the Parotid, situated just back of the jaw, and below the ear; the Submaxillary, farther forward, and beneath the under jaw; and the Sub-lingual, under the tongue, back of the front teeth.

The others are named according to their position, the labial, or lip glands; the buccal, or cheek glands; palatine, or palate, and lingual, or tongue, glands. Each pair of these glands, large and small, secretes a fluid peculiar to itself, and each has a duct by which its fluid is conveyed into the cavity of the mouth. The precise nature and office of each secretion has not been definitely ascertained, yet their combined action upon starchy food, changing it to sugar, which change is necessary before it can be absorbed, is well understood. It also dissolves sugar and fits it for absorption, so that when there is a free flow of saliva all sugar and much of the starchy food eaten, is prepared and absorbed in the mouth, œsophagus, and stomach. It is principally by the action of the saliva and pancreatic juice that the entire saccharine group of food is prepared for absorption.

The salivary glands are often excited to action by the thought of food, while its savory smell is sure to "make the mouth water." The presence of food in the mouth, and also the act of mastication, causes a flow of saliva, and thus, the more thoroughly the food is submitted to minute subdivision by mastication, the more perfectly it will become insalivated, and the more readily will it yield to the solvent action of the fluids by which it is to be prepared for use in the system.

Gustation, or the enjoyment of food, which essentially aids digestion, is prolonged and increased by eating slowly and masticating thoroughly; for the gustatory nerves lie mostly in the tongue, and the longer the food remains in contact with them the greater the enjoyment. Then, too, these nerves recognize agreeable flavors only by means of absorption, and as fluids alone admit of being absorbed, the finer and moister the food becomes while in the mouth the more it is absorbed and enjoyed. It is well known that some persons have lived for months, and even years, without swallowing a particle of solid food; but they have masticated and insalivated the most nutritious substances, and absorbed therefrom a sufficient quantity of nutriment to sustain life.

DEGLUTITION.

Deglutition consists in swallowing, or passing the food from the mouth to the stomach. The entire alimentary canal is lined with the mucous membrane, and throughout its length a glairy mucus is thrown out, which is nature's oil for the track, to assist the food in passing smoothly along without friction. This mucus aids in producing the chemical changes essential to digestion, as well as in protecting the tissues from being injured by corroding substances. It is very abundant in the œsophagus and is the natural aid in deglutition.

Many persons are accustomed to take a swallow of tea or some other liquid, "to help each mouthful down;" this habit is very deleterious to health. It will be found that those who do this chew their food but little; the salivary glands are consequently not called upon for service and become inactive; the food is not insalivated and thus lacks an element essential to digestion. Then, too, it being swallowed in masses is not easily impregnated by the gastric fluids, and the stomach becomes wearied with its excessive efforts to disintegrate the mass; and this over-taxation is necessarily followed by uneasiness, suffering, derangement, and disease.

CHYMIFICATION.

By this process the food is changed to chyme, and as it is the work of the stomach, it is often called stomach-digestion. The mucous membrane of the stomach is thick and soft, and, in a state of rest, is thrown into numerous irregular folds by the contraction of the muscular coat; as food is taken, and the stomach distended, these folds are gradually smoothed out, and the surface is found to be covered with a multitude of little cavities or cells which are filled with mucus; these cells extend into the membrane only about one eighth of its thickness, the remaining portion being made up of minute tubular offsets from the bottom of the cells. These little tubes are glandular in structure, and by means of them certain elements are taken from the blood, converted into gastric juice, and thrown into the stomach.

The mucous cells are deeper and the mucus of different composition near the pylorus, or opening from the stomach into the intestines; the gastric tubes are also much shorter, and their formation differs from those in other parts of the stomach, all of which would indicate that the office of this part, in the work of digestion, is essentially different from that of the rest of the organ.

The gastric juice is a viscid fluid composed of pepsin and an acid. Upon the advent of food into the stomach the gastric tubes pour forth their contents, and the muscular coats of the stomach being at the same time incited to action, the food is gently pressed, and squeezed, and churned, till every particle has been acted upon by the gastric juice. The outside of the mass is, of course, most readily mixed with, and dissolved by, the fluid, and as each portion becomes thoroughly changed, it flows away and passes on through the pylorus into the duodenum, or second stomach, as the first twelve inches of the intestines are called.

The albuminous, or nitrogenous, group, as found both in animal and vegetable foods, is mostly digested in the stomach, by means of the gastric juice. The necessity for the thorough mastication of meat, therefore, lies in its being thus more readily acted upon by the gastric juice, while with starchy food it is from the insalivation which accompanies mastication that a large share of the benefit arises. Carnivorous animals have teeth adapted only to tearing and cutting, and their food is retained in the mouth only long enough to make the pieces sufficiently small to be conveniently swallowed; vegetarian animals are supplied with teeth for grinding, and retain their food in the mouth, chewing it for a long time,—with the carnivora the gastric juice is sufficient; with the gramnivora, or vegetarians, the saliva is indispensable. The cow, the sheep, the deer, and all animals called ruminant, chew the food very little before swallowing; it is afterwards regurgitated, however, and chewed a second, and even a third time.

CHYLIFICATION.

The change from chyme to chyle takes place in the duodenum; the chyme, whose color depends largely upon the color of the food ingested, is here changed to a creamy hue by means of the bile and pancreatic juice; this change in hue is supposed to be due to the chemical change produced by the action of these juices, which are alkaline, upon the oily matter contained in the food.

It is not until now that the oleaginous group, comprising butter, lard, tallow, fat meats, and both animal and vegetable oils, is changed in character, as these substances are not affected by either the saliva or gastric juice; and this being the case it is evident that foods mixed with, or cooked in grease, can not be as readily digested as when cooked in some other way. Meats, especially, are thus rendered difficult of digestion; for when cooked in fat the grease forms a coating, which, to a great extent, prevents the action of the gastric juice, while this juice alone, of all the digestive fluids, has power to dissolve the meat.

By the warmth of the stomach and the action of its juices upon food, the oily portions are simply set free and float in the form of minute drops upon the mass. As the food, changed to chyme, passes out of the stomach, the pancreatic juice converts the liquid, oily matter into a complete and permanent emulsion, prepared for absorption by the lacteals; it also completes the change into sugar of that portion of starchy food not changed by the saliva; and the gluten, fibrine, albumen, caseine and other nutrient materials that have not yet been thoroughly changed, are liquified and fitted for absorption by the combined action of the bile and intestinal juices. This creamy chyle becomes more dilute and milky as it mingles with the juices which are poured out from minute glands all along the upper portion of the intestines, and thus it is more readily absorbed.

The precise office of the bile as regards digestion is not yet fully known. It aids in the digestion of fats, however, and serves as a stimulus to excite to action the glands and coats of the intestines; this latter is demonstrated by the constipation which usually occurs in jaundice, or whenever its flow into the intestines is obstructed, and by the diarrhea so often attending too great a flow of bile. From experiments upon animals it is supposed that the bile also possesses antiseptic qualities which prevent the putrefaction of albuminous food, as well as check the acid fermentation of vegetable food.

The intestinal juices are secreted by Brunner's glands in the duodenum, together with numerous other glands in the small intestines. These juices have, undoubtedly, a special function to perform in the digestive process, but this function is so intimately associated with that of the pancreatic juice and bile, that we can only say, these agents seem to work together for completing the preparation of food for absorption by the lacteals.

ABSORPTION.

This process takes place along the entire track of the alimentary canal, beginning in the mouth—each portion of the canal takes up and carries into the circulation some part of the food which has been previously liquified. The absorption which takes place in the mouth, œsophogus, and stomach, is performed by means of the capillaries, and the nutrient substances are carried by them directly into the blood. The principal portion of the nutriment, however, is absorbed in the small intestines, the lining membrane of which is doubled alternately on either side of the canal, forming little crescent shaped folds, or valves, each extending a little more than half way across, so that the edges overlap. These valves are, in some parts, not more than a quarter of an inch apart, and they, as well as the walls throughout the entire length of the small intestines, are thickly studded with minute projections, called villi, so closely packed together as to present the appearance of velvet. These villi suck up whatever is fitted for absorption and the valves, waving and moving in the advancing stream of chyle, serve to retard its flow, and also to bring every particle in contact with the villi, so that whatever is suitable for nourishment may be absorbed.

The tiny ducts of the villi, called lacteals, convey their precious freight to the thoracic duct, a small tube lying near, and to the left of, the spinal column; the first portion of this duct is called the "*receptaculum chyli*," or receptacle for the chyle, and resembles a small pouch holding about a table-spoonful; this pouch lies near the spine, below the stomach, and back of the intestines; from this point the thoracic duct proceeds upwards to the left lower portion of the neck, and discharges its contents into the left subclavian vein, where they mingle with the impure blood and with it are carried to the heart, and thence to the lungs for oxygen which fits it for the crowning part of the process of life, viz., assimilation, or the transformation of blood into tissue, which takes place in every portion of the body.

How or why each tissue attracts from the blood and appropriates to itself those particles and those only which are peculiarly adapted to build up its own tissue, or repair its own waste. none can tell save

Him who planned and formed this wonderful and beautiful structure.

DEFECATION.

This is a process of purifying, but as applied to the human body, it is the work of the colon, or large intestines. It should rightly be considered a part of the digestive process inasmuch as digestion cannot be perfect unless this function be properly performed. By this process all substances ingested and not absorbed are thrown out of the body. Much of the worn-out tissue and waste material of the system is also carried by the blood and discharged into the colon, where it mingles with the matters collected there, to form the feces. Every one knows that when sewers and drains are clogged, the fetid air thrown back from the putrid mass causes disease and death. When the great sewer of the system is clogged not only are fetid gases generated, but the mass of impurities is retained within and necessarily permeates and poisons the entire body. It is no wonder then that its closure should produce fatal consequences, as is so frequently the case.

FORMS OF DYSPEPSIA.

Dyspepsia is usually classified as nervous, mucous, bilious, and intestinal. Strictly speaking, the different forms of dyspepsia should be classed as salivary, gastric, bilious, pancreatic, intestinal, and nervous; for if the function of any one of the organs to which these terms are referable is disturbed, a certain class of dyspeptic symptoms is sure to follow. For instance, the saliva and pancreatic juice alone possess power to change starchy food to sugar; now if the organs which secrete these fluids are out of order, the digestion of starchy foods,—such as bread, farinaceous preparations, and many vegetables,—is very imperfect, and such foods, if eaten, become a source of great trouble.

Meats are dissolved and prepared for absorption almost entirely by the action of the gastric juice; if this juice is imperfect, either in quality or quantity, animal food cannot be well digested and should be avoided.

As the pancreatic juice and bile are essential to the digestion of fats and oils, it follows that these substances should be very sparingly used or altogether avoided, when the pancreas and liver do not properly perform their functions.

When the brain and nervous system are seriously affected the supply of nervous force in the digestive apparatus is greatly lessened, so that even the smallest quantity of simple food will often create great disturbance. Nervous dyspepsia is usually the most aggravating to bear and the most obstinate to overcome.

From the foregoing it will be apparent that the phase of dysyepsia which any particular case assumes, depends upon what part of the apparatus is at fault; and the different phases of dyspepsia account for the difference in individual cases as regards the ability to digest or tolerate particular kinds of food. One dyspeptic is troubled about digesting starchy food or sugar; another can not eat meat; still another cannot digest fats or oils; another may digest almost any thing when business is prosperous and mental conditions harmonious, but when the opposite obtains he can digest hardly anything.

Defect in any part of the digestive apparatus affects all parts of the body more or less; for the aliment can not be properly prepared to make good blood, and the blood being deficient either in quality or quantity, the whole system suffers. In a state of perfect health the entire being is permeated with a general sense of enjoyment, yet no organ of the body manifests any special sensation. This is the normal condition—the fulfilment of God's intention when he bestowed the gift of life.

The stomach is no exception to this rule; farther than a feeling of hunger when nutriment is needed, and a feeling of satisfaction when sufficient food has been taken, every sensation referable to the stomach is abnormal.

APPETITE.

The sensation of hunger is occasioned normally by a want of nutriment in the system. When a desire for food is experienced within three hours after eating a common meal, it is a sure symptom of dyspepsia. *Bulimia*, or excessive appetite, *anorexia*, or loss of appetite, and *pica*, or morbid appetite, are frequently met with among all classes of people.

Excessive appetite may arise from a gluttonous disposition, and may be habitual; in such cases it inevitably leads to disease. It often accompanies organic affections of the stomach, pylorus, or mesenteric glands; it is frequently caused by worms; also by abuse of the sexual function, and, hence, is a prominent symptom of spermatorrhea. It is also a symptom of diabetes, and sometimes indicates disease of the brain leading to insanity.

Loss of appetite accompanies fevers and many other diseases, and indicates that the system is not in a condition to receive, prepare, and assimilate food. When it arises from exposure to heat, or during summer weather, it should not be confounded with disease. In cold weather the body must generate sufficient heat to counteract in a measure the influence of the atmosphere, and consequently requires more food, or fuel, than when the weather is warm. The loss of appetite therefore, which is experienced in warm weather is an indication that the supply of food should be lessened.

Vitiated or morbid appetite is dependent upon diseased conditions of either mind or body. It is frequently met with in idiots, in the insane, and in cases of pregnancy, hysteria, and chlorosis. It is also a marked symptom of dyspepsia.

CAUSES OF DYSPEPSIA.

The causes of dyspepsia, although numerous and varied, may be mostly embraced under the term "habits of life;" and unphysiological habits of eating should stand most prominent in the list.

EATING.

According to Bible history, literally interpreted, eating was the first great cause of all the evils entailed upon mankind. It was by eating of "the tree of the knowledge of good and evil" that our first parents learned by experience what good and evil was; and it is by no means improbable that very much of the experience in good and evil in this age is due to habits of eating. Some persons eat too much, some too little, some too fast, some too often, and some eat nearly all the time. Some eat too many kinds of food at once; others too few; and others still, eat things which were never designed for food at all.

There are but few things under the sun belonging to the animal or vegetable kingdoms, which are not used as food by some nation or people. The Indians of this country eat bear and buffalo meats; the Greenlander, whales, seals, and walruses; the French, horses, snakes, and frogs; the Chinese, rats and puppies; the Danes, shrimps and bugs; the Dutch, sourkrout and Bologna sausage; the English, roast beef and plum pudding; the Scotch and Irish, oat meal and potatoes; the Yankee, any thing set before him, and he generally wants an endless variety; while to the African cannibal, the sweetest meal is of human flesh. Fruits, grains, and vegetables, are eaten in all parts of the world, and by nearly all classes of people.

To some people it seems absolutely essential that each meal should consist of as many varieties of food as can be obtained, and these must be served in every conceivable manner. Examine an ordinary American, English, or French cook-book and see what numberless articles are in common use as food and how many thousand methods have been invented for compounding, cooking, and serving. Even the most healthful food is so mixed and cooked, so salted and peppered, buttered and gravied, soured and oiled, spiced and sweetened, creamed and confectioned, that none but a human stomach could manage the mixture.

When we consider what an incongruous mess is thrust upon the stomach at a modern luxurious dinner, we ought not to be surprised that this organ is so often the seat of serious trouble. Soup, fish, fowl, and flesh, pepper, vinegar, mustard, catsup, pickles, gravies, jellies, oil, vegetables of various kinds, puddings, pie, cheese, fruits, nuts, ice-cream, confections, and numberless other articles of conflicting chemical qualities, are thrown together to ferment and generate gases which necessarily produce disease,—and this mass is washed down with tea, coffee, cocoa, chocolate, cider, ale, beer, wine, brandy, whisky, and numerous other nameless decoctions; truly "man is fearfully and wonderfully made!" No other animal could subsist on such a diet.

The swine might possibly manage all except the whiskey, brandy, and wine, but "it would kill a gorilla in a month," and it does kill, though more slowly, thousands of the human race who style themselves "ladies and gentlemen."

At a dinner given in New York to Gen. Grant, thirty-two varieties of food were served, each of which was cooked in four different ways, thus making one hundred and twenty-eight dishes, besides all the fancy fixings and fashionable beverages which necessarily form a part of such a feast. Is it any wonder that every now and then some of our great men, our statesmen, lawyers, and editors, are stricken down with apoplexy, or with heart disease, while very many others grow weak, decay, and die, before their time.

The truth is, the mass of the people use neither reason nor instinct, neither science nor conscience, in their habits of eating; yet the most perfect condition of the human system is dependent upon good blood made upon strictly scientific principles, the elements of which are formed from particular kinds of food, digested by a proper combination and admixture of all the digestive fluids. It is eating improper kinds of food, in improper quantities, at unseasonable hours, and in an injudicious manner, that generally gives rise to derangements of digestion, and produces impure blood and the various diseases resulting from it.

By eating improper food the digestive organs have tasks imposed upon them which they were never designed or fitted to perform. By eating too much they are over-taxed with work and are not able to do that work well; or if they do manage to perform the work there is more nutrient material produced than the absorbents can take up, or the system use. By eating too often, the stomach is over-worked, has little or no time to rest, and, after a while, is tired out and finally broken down. The muscles of the arm if kept at work constantly, would soon become paralyzed, and the stomach being a muscular organ and possessing intense nervous force as well, calls for rest quite as loudly as any other organ except the brain. On the other hand, by eating too little there is not sufficient nourishment to enable the digestive organs to perform their work perfectly, and they, as well as other parts of the body, fail from this cause. Eating too little, however, is not a common fault. It obtains usually only among two classes, those who by reason of poverty, are unable to procure a sufficient supply of food for the wants of the system, and those radical health-reformers who carry their theories to extremes and voluntarily deprive themselves of the amount of nourishment they require. I have seen several cases of the worst form of dyspepsia among the latter class of extremists, for extremists they generally are, often living for a long time with far too little food, and then going to the opposite extreme and eating much more than they ought.

Eating too fast is, among Americans, a national sin! "Fast" in every respect, they increase their energies at table, and swallow their food as though they had but so many seconds in which to eat, and their life depended upon eating just so much in that short time. Eating too fast is almost sure to be attended with eating too much; for food swallowed hastily, without mastication and insalivation, does not satisfy as does food properly prepared for digestion and taken at a moderate rate. When food is "bolted," the stomach stands aghast, as it were, overcome by the amount of work thrust so suddenly upon it. There is a shock produced by the suddenness and greatness of the change from emptiness to fullness; whereas, when each mouthful is well chewed, the stomach receives it with benefit, and readily works upon and uses it. Fast eaters are sure to become dyspeptic. We Americans are a race of dyspeptics. Generation after generation have gone astray, and each generation having less of digestive power to transmit, the succeeding ones are born with inherited weakness of those organs on which depend the current of life. We have baby-dyspeptics all over the land; and it is only by training the children to pure and healthful "habits of life," that we can ever recover the stamina which is our birthright! Ah, how many in these days "sell their birthright for a mess of pottage," and most signally lose a blessing thereby.

Candies, Cloves, and Sweetmeats.—These are fruitful causes of dyspepsia; yet the craving for something to appease the constant gnawing engendered by these articles becomes so strong that many persons think they can scarcely live without them. They would pause and hesitate, however, if they knew what poisonous materials are used in the composition of candies and confections. Gamboge, a powerful poison, is used for coloring them yellow; so also is turmeric, chromate of lead, and crome yellow; brunswick green, or the oxychloride of copper, emerald green, or the arsenite of copper, and the chromate of lead and indigo, are used for coloring the different shades of green; prussian blue, antwerp blue, smalts, or glass of cobalt, and ultra-marine, are used in coloring the shades of blue; red lead, in the red; and burnt umber, an earth containing oxide of iron, in the brown; while the fluoride of calcium,—called "Daff,"—chalk, or carbonate of lime, marble, plaster of paris, and white clay, are extensively employed in the adulteration of the sugar of which candies and confections are made. In view of all these facts it is no wonder that the constant use of such poisons produce, derangement and disease, particularly of the stomach and alimentary canal; and many a death if traced to its legitimate source, would be laid at the door of the candy-shop.

CONDIMENTS.—The excessive use of condiments, such as pepper, spices, mustard, vinegar, etc., is also a common cause. These articles are entirely innutritious; they neither increase the quantity nor improve the quality of the blood, and instead of adding to the enjoyments of life, they, in the end, detract therefrom. They tend to irritate the mucous membrane of the alimentary canal and cause more blood than is natural to flow there; and this excessive flow of blood is always liable to result in congestion and inflammation; they disguise and change the natural flavor of the food with which they are mixed, and so pervert the taste that the artificial flavor is preferred to the natural. They fire the blood, arouse the passions, and engender a morbid desire for still more exciting food and drink.

PICKLES AND VINEGAR.—These are among the most deleterious compounds that enter the human stomach. Acetate of copper, or verdigris, and sulphate of copper, or blue vitriol, are used largely in the preparation ot pickles for our markets, while sulphuric acid, or oil of vitriol, is the acid ingredient used in the manufacture of vinegar with which many of these pickles are made, as well as a large proportion of that which is daily used in our large cities. No living animal except man could ever be induced to eat of these compounds.

Let a person use vinegar in the same way and in the same quantity that he would use gin, rum, or brandy, and it would kill him in one quarter of the time; for vinegar is as much worse than these substances as these substances are worse than sweet cider. Alcoholic stimulants are made from the decomposition of grains, while even the best vinegar obtained in cities, is made from the decomposition of alcohol, and is about as much worse than alcohol as alcohol is worse than grain.

The demand of the system for acids, which is so frequently felt, causes many persons to use vinegar freely, but the natural organic acids as found in fruits, supply the need far more safely and effectually. These are chiefly, citric acid in the orange tribe, which includes lemons, limes, etc.; tartaric acid in grapes; malic acid in apples and pears, and also—though mixed with other acids—in cherries, plums, etc.; and oxalic acid in rhubarb.

It is true that acetic acid, or vinegar, dissolves many organic substances, such as gluten, gelatine, gum, resins, the white of eggs, etc., and on this account may seem to aid digestion; but the gastric juice is the natural solvent of these substances, and the habitual substitution of an artificial solvent can not but impair the quality of the blood, and in the end injure the whole digestive system. Examine vinegar under a microscope and it will be found literally alive with cryptogamia or living animalculæ which of themselves are a frequent cause of disease.

DEFECTIVE MASTICATION.—Whether resulting from poor teeth, or from a habit of eating too fast and "bolting the food," defective mastication is a frequent cause of confirmed dyspepsia. Decayed teeth not only interfere with perfect mastication but they are liable to become filthy and offensive, and thus befoul the breath, vitiate the saliva, and generate poisonous matters which mingle with the food and are thus taken into the system to do their work of evil.

Good teeth are essential to good digestion and in these days of excellent dentistry every one can be supplied. So long as natural teeth can be preserved, every means should be taken for their preservation, for they are far superior to any others, but if they are beyond repair so as to interfere with thorough mastication, they should be replaced at whatever cost.

Drinking at Meals.—Excessive drinking of anything at meals is sure to derange digestion. The habitual and excessive use of tea and coffee is a frequent cause of dyspepsia. These drinks interfere with the proper action of the digestive fluids, impair the appetite, derange the nerves, render assimilation less perfect, and prevent the active elimination of the waste and refuse materials of the body. The proper fluid for moistening the food is the saliva; this not only facilitates deglutition, but its chemical constituents, incorporated into the food, are essential to perfect digestion. Food moistened and softened by tea, coffee, water, or any other fluid is liable to be swallowed without mastication, and the digestive process is thus interfered with for want of the saliva. Furthermore, this habit of washing down the food dilutes the gastric juice, thus lessening its solvent power; then, too, as fluids are mostly absorbed in the stomach, such over-action of the absorbents is induced as to weaken the muscular and nervous powers so essential to good digestion. If people must take tea, coffee, or other drink, at meals, it is better to take it at the close of the meal.

ALCOHOLIC STIMULANTS AND TOBACCO.

Alcoholic stimulants interfere with digestion in a manner similar to other fluids, but to a much greater extent. It is true that they seem in some instances to aid digestion and improve nutrition by causing a more copious flow of blood to the stomach, which blood carries with it the elements of the digestive fluids; there is no doubt that a temporary benefit may, in some cases, be derived from their use, but the congestion and inflammation of the mucous membrane produced by them, the irritation and permanent injury of the liver and other internal organs, the poisonous and often ruinous effects upon the brain and nervous system, and upon other parts of the body, to say nothing of the social miseries, the poverty and crime which they occasion, leave but little room for doubt as to the danger of employing them even for medical purposes, and afford proof that at last they "bite like a serpent and sting like an adder." Pepsin, the organic element of the gastric juice, which is soluble in water, is rendered insoluble by alcoholic spirits. Hence the vomiting attendant upon a debauch—the power of the gastric juice is destroyed, the food lies undigested, and the stomach relieves itself of its burden; and even if there is not a sufficient quantity taken to produce this result, the tendency is to decrease the digestive powers, and, sooner or later, induce disease. Gastric dyspepsia is the form resulting from the use of alcoholic stimulants. All drunkards have inflamed stomachs, and no person can use ardent spirits habitually, for any length of time, without inducing a congested and inflamed condition of this organ.

Tobacco, whether smoked, chewed, or snuffed, is one of the most fruitful causes of dyspepsia. Smoking deadens the nervous force of the stomach as well as other parts of the system, and the result is far more deleterious than smokers are willing to admit.

Chewing will excite action of the salivary glands, causing a free flow of saliva; this saliva is needed as an aid in digestion, and should be either mixed with the food in the mouth or swallowed and mixed with it in the stomach; mixing it with the nauseating and poisonous juice of tobacco and depositing it in stoves and spittoons, or upon floors, carpets, and sidewalks, is surely making a perverted use of a very essential agent to healthy digestion; and, besides this waste of saliva by tobacco chewers, that which remains is materially impaired in quality, its natural properties being destroyed, and its natural action lost. Tobacco chewers, as a general rule, are great meat-eaters, and there is, no doubt, a scientific reason for their being so. Salivary dyspepsia is the form produced by tobacco, and this is always attended with the difficult digestion of starchy food.

Snuff-taking is, perhaps, more deleterious than either smoking or chewing, for the very grains of poison are, by this means, constantly brought in contact with the delicate lining of the nasal passages and thus seriously affect the head, and, in turn, the entire nervous system. Then, too, grains of snuff are carried into the stomach and lungs where they become a source of much local injury; this is unavoidable when people "dip," or deposit snuff, by means of a little spoon or brush, far back in the mouth or throat. Snuff-taking occasions nervous dyspepsia and leads to imbecility.

SEXUAL ABUSE.

Next to habits of eating and drinking, abuse of the sexual function * is, probably, the most prolific source of dyspepsia. This abuse wastes the vital elements of the blood, deprives every part of the system of the materials needed for the healthful performance of their functions, exhausts nervous force, impairs the brain, and

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* See the Author's work on "VITAL FORCE: HOW WASTED AND HOW PRESERVED." Price, 50 cts. MILLER, HAYNES & CO. New York. 41 West 26th Street.

induces disease and premature death. Some of the worst cases of dyspepsia I have ever seen were caused by *self-abuse*, and bad cases of every phase are found among those guilty of promiscuous and marital excesses. Nervous dyspepsia is, generally, the phase which results from this cause.

SEDENTARY HABITS.

Sedentary habits are another frequent cause of dyspepsia. Cases arising from these habits are most common among book-keepers, clerks, bankers, lawyers, ministers, teachers, and business men who spend much of their time sitting in gloomy back offices, excluded from sunlight, breathing impure air, with active exercise of the brain and no exercise for the muscles. Both nervous and bilious dyspepsia are produced by such habits.

WANT OF LIGHT AND AIR.

Confinement in darkened and illy-ventilated rooms is a frequent cause of dyspepsia; for without pure air the blood cannot be purified, and without pure blood the digestive fluids cannot be of good quality nor the digestive organs be enabled to do their work properly.

Fashionable mothers and their delicate daughters suffer much from this cause. It is true that by a free admission of air and sunshine the complexion will become more ruddy, and, therefore, to many, less beautiful; but this is a morbid taste born of the morbid conditions which grow out of unhealthful habits. Then, too, carpets and furniture will be faded by sunlight, but better this than that the ladies themselves should be faded and old before their time.

Sleeping in unaired beds also causes dyspepsia. Most people spread up the bed on rising, or make it as soon as they are dressed. This is a very uncleanly and injurious habit. It is literally shutting up excrement to be slept in at night. During the night the body has thrown off impurities at every pore; the bed and its coverings are saturated with it; and this waste matter, this filth, is bottled up, as it were. day after day, and wrapped around the body night after night, thus preventing the passing off of the full amount of impurities from the skin, if not being reabsorbed by it. The whole body needs pure air day and night in order to insure health.

MENTAL TAXATION.

Mental anxiety and pecuniary embarrassments such as loss of property by fire, by failure in business, or by bad debts, and also domestic troubles, disappointed affections, and the loss, or the treachery, of friends, will frequently cause dyspepsia; too close, and too active intellectual labor is also a frequent cause. Editors, authors, and literary persons often engender dyspepsia in this way.

Much brain-labor requires much blood at the brain, and an ever-working intellect uses up so much of both blood and nervous force that there is not enough remaining to do the work of digestion.

On the other hand, deranged digestion is sometimes produced by too little exercise of the brain. Persons are frequently met with who have been in active business life and, having accumulated enough to satisfy their ambition, have retired from business. Now although the brains and bodies retire from active life, yet the poor stomachs very often have their tasks increased. If a man has been for a long time accustomed to eating heartily and working hard, either with body or brain, he had better not relax his working habits without at the same time having a corresponding relaxation in his habits of eating. "He who will not work neither shall he eat," is not only a Bible injunction, but a law of the human constitution, the disobedience of which is often attended with such derangements of digestion, and other bodily infirmities, as to render either property or life of but little value.

IMPROPER EXERCISE.

Exercising too actively immediately after eating is another cause of dyspepsia. This practice prevails largely among farmers and mechanics. During haying and harvesting, particularly, farmers often hurry through their meals and rush out immediately to hard labor before the digestive juices have time to begin their action upon the food eaten. The fluids which aid digestion are secreted from the blood by glands arranged for that purpose; during and just after a meal the flow of blood to these glands is very free; now, if it is diverted and sent to the muscles or brain too soon, or too largely, the digestive process is arrested, and this practice being continued, causes indigestion and dyspepsia.

I have known several cases where digestion has been entirely suspended in persons, who, after eating a full meal, have run hastily up a long flight of stairs, or hurried to meet a train of cars. The food lay like a foreign substance in the stomach, causing distressing sickness which could be relieved only by the throwing up of the entire mass. Fits are often caused in this way.

TIGHT LACING.

This is one of dyspepsia's most successful agents. Just over the lower ribs, in the region of the stomach and liver, comes the pressure. These organs can not perform their functions for want of room in which to work—they are forced upward thus interfering with the action of the heart and lungs, and palpitation, difficult breathing, liver cough, etc. are the result; or, they are forced downward, causing falling of the bowels, constipation, and all sorts of derangements and diseases of the organs of generation; the muscular power of the stomach is greatly lessened, the blood vessels are pressed upon and the flow of blood obstructed, the nerves lose their natural tone, the liver becomes sluggish or torpid, and these most important organs in the economy of life are finally rendered inert, or nearly so. Then comes dyspepsia, skin diseases, cold feet and hands, female difficulties, delicate lungs, weak backs, and a whole train of followers, while the deluded victims insist that they "never laced," and that their manner of dress "has nothing whatever to do with their various diseased conditions."

SCHOOLS.

The "cramming" system which sometimes obtains, is undoubtedly, a cause of dyspepsia, yet it is not the overtasking of the brain only, nor chiefly, which engenders disease in our children at school; it is the want of that ever-varying physical exercise which is so natural, and so essential to the health and growth of every child; it is the crooked and distorted positions in which they sit; the confined and impure air they are often compelled to breathe; and, more ruinous than all the rest, the exhausting habit of self-abuse which so many children and youth contract in schools and colleges, and which is one of the most prolific causes not only of deranged digestion but of premature decay and death.

PURGATIVES.

As an accompaniment of all other causes of dyspepsia, purgative medicines are most prominent. A large majority of people are in the habit of taking pills and powders, salts and senna, oil and rhubarb, or other purgatives, for every slight derangement arising from colds, exposures, excesses in eating or drinking, late hours, over-work, and other equally palpable violations of nature's laws. The immediate effect of these doses may seem beneficial, but it is disastrous in the end, for this artificial stimulation deranges the functions of the stomach, liver, and bowels, destroying their power to act naturally, while the substances employed poison the structure of these organs, as well as the other tissues of the body.

When a steam boiler gets out of repair the engineer does not pitch into it a quantity of cobbles, sand, and offal;—he ascertains where the difficulty lies, and then carefully cleanses, repairs, and polishes, using exactly such materials as entered into the several parts of the machine when it was constructed. When your sewing-machine does not work properly you look for the cause and remove it; or, if any part is worn or broken, you submit it to some one who knows just how such machines are made and how they should be repaired, and he takes materials similar to those of which it was originally formed, and applies them in such a way as to restore it to running order. If he did not understand the machine, or if he were to use other materials than those of which the machine was made, he would be almost sure to do more harm than good. Why not be as sensible with regard to our bodies? machines a thousand times more delicate, and more intricately made than any of human construction. The body removes its own *debris*, and makes its own repairs, if only proper material is supplied for its use; but, instead of this, when out of repair, substances entirely foreign to its nature, substances which it can not use, but must exert every effort to get rid of, are thrown in at a venture; and because the organism resents the intrusion, and is roused in spite of its weakness to fight for its life, we say, "ah, the object is accomplished," we "knew that medicine would fetch it," never considering that the future, and not the present, is to decide the good or ill that may have been done. Now, although the medicines used may be of the precise nature of some of the elements of the body, yet they can never be appropriated by the tissues to supply the waste of the system, for these elements are appropriated only when taken as constituents of food, elaborated by the digestive process, and made into blood in combination with other elements of which foods are composed. Even those medicines which are considered harmless and are administered with the greatest freedom in almost every family, frequently produce much mischief for which no cause can be assigned.

Dr. Sigmond writing on Materia Medica, says: "Magnesia, than which nothing is considered more simple, has been productive of fatal consequences. Masses of it, unchanged, have been found closely connected together in the bowels, or patches of the powder adhering with the utmost pertinacity to the coats of the intestines." "After taking manna, particularly if much vegetable food has been eaten, dyspepsia of a most aggravated character is apt to occur, more especially in children; the flatulence produced has been a fearful evil, and the consequences, alarming." "Castor oil, if given under improper circumstances, will not only occasion excruciating tormina, but will cause the expulsion of the mucus which lubricates the bowels and defends them from injury." "Many persons have had to repent the folly of taking the different neutral salts; diarrheas, dysentery, and dropsy, have supervened upon their use." "Gamboge is, of all others, the most uncertain, and oftentimes the most pernicious. Its influence is principally exerted upon the muscular fibre and it is a most energetic engine of mischief. It has been known to produce intussusception, and in some of those cases of death produced by the violent action of pills on the intestinal canal, which have come before the public, this drug has evidently been the means employed. The good sense of the people has taught them to discard aloes, once the basis of every aperient pill, and gamboge, which is infinitely more pernicious, has been substituted; but of the two evils the hemorrhoids produced by the former are far preferable to the disease and death consequent upon the use of the latter." "Even senna, which comes nearer a harmless domestic remedy than any other, is not so if given alone. It is not only a cause of griping and inconvenience, but it leaves behind many evil tendencies. Indeed a catalogue of sorrows occasioned by the indiscriminate and foolish use of purgatives might easily be drawn up; but such is the headstrong tendency of many individuals to doctor themselves that it would be a curious, rather than a useful, task, to undertake it."

"A very strong evidence against the frequent and hasty discharge of the contents of the bowels, which always follows the use of purgatives, is found in the great length of the alimentary canal, it being about six times as long as the body. Had frequent entire discharges been the plan of nature, the intestines would, without doubt, have been shorter and simpler in their formation; for not only is there this great length, but all along the greater part of the way are placed the valves heretofore described, for the express purpose of retarding the otherwise rapid movement of their contents. Moreover the little lacteals or absorbents could never accomplish the work of taking up the nutriment if the food was compelled to pass at a gallop over their extremities. Nature says plainly, let the food remain—purgatives put nature at defiance and eject it all. Nature says, nourish the body—purgatives starve, weaken, and exhaust it."

Purgatives often cause a copious discharge of slimy matter from the bowels, and many people imagine that this is a mass of impurities which ought to be removed, and they consequently think that "physic" does a great deal of good. Now this slime, as it is called, is simply the mucus with which nature covers the mucous membrane throughout the entire length of the alimentary canal, in order to keep it soft, and also to facilitate the passage of the food, as well as to protect it from being injured by poisons, or by indigestible and irritating substances which may be swallowed; and when this mucus is removed, the denuded membrane is necessarily subjected to constant irritation, which leads to permanent congestion, inflammation, and even ulceration; and thus, by means of purgative medicines, irremediable disease is often engendered in the alimentary canal.

SYMPTOMS OF DYSPEPSIA.

The most prominent symptoms of dyspepsia are a feeling of weight and oppression, of tightness and soreness, or of emptiness and sinking at the stomach ; pain in the stomach or bowels; cramps, or spasm of the stomach; acidity, heartburn, waterbrash, vomiting, regurgitation, flatulence, constipation—sometimes alternating with diarrhea,—sick head-ache, morbid appetite, loss of appetite, furred tongue, foul breath, palpitation of heart, piles, pain in loins and limbs, failing of strength, loss of flesh, cold feet and hands, catarrh, consumption, mental depression, hypochondria, and insanity.

There are many other symptoms which we have neither the time nor space to consider; we will, however, analyze a few of the symptoms given, and discover if possible what they indicate, and what particular phase of dyspepsia they are associated with, that we may know what part of the digestive apparatus is most diseased, and where and how to apply our treatment.

WEIGHT.— A sense of weight or fullness is described by some as a feeling of tightness or oppression, or of distension of the stomach. It is most commonly felt toward the right side, near the pyloric end. *Post mortem* examinations have proved that this sensation is an evidence of gastric dyspepsia nearly assuming the form of catarrh of the stomach.

Emptiness or Sinking.—A feeling of "goneness" is often complained of, or an emptiness and sinking at the stomach. Hunger naturally occasions this sensation, but when it occurs, the supply of food being plentiful, it may proceed from tape-worm, from diabetes melitus, or from dyspepsia alone.

Pain in the Stomach.— This denotes a more serious condition of the organ than that indicated by the sense of weight or the sinking above described. Pain should be regarded as a friend of the human race. It is the signal of danger, designed to point out the necessity of change in our mode of life, if we would avoid serious consequences. It is, like the lighthouse at sea, a warning of the near approach to rocks and breakers, which, if not avoided, will founder the ship.

A constant, wearing pain, usually indicates some organic change induced by chronic inflammation, ulcer, cancer, or something of the kind, which is not easily restored to a normal condition. With this state of things there is usually increased suffering after meals, loss of strength, disturbed sleep, emaciation, and if pressure be made over the stomach it occasions an increase of pain either at the time or soon after. If the pain is dependent on ulcer or cancer there is usually vomiting of blood or pus, or these matters may sometimes pass away by the bowels.

There are occasional anomalous pains in the region of the stomach, caused by the retention of fecal matter in the bowels, by gas, or by dysmenorrhea, or hemorrhoids, but these are quite different from the constant pain often accompanying gastric dyspepsia.

SPASM OF THE STOMACH.— This is often called stomach-ache, and is usually dependent upon over-distention of the stomach by food, drink, or gas, or by severe exercise too soon after eating. This pain is transient, and very different in character from the wearing pain above described. Spasm of the stomach in gouty people, is sometimes called gout in the stomach; and as Dr. Watson says, "gout in the stomach may sometimes turn out to be pork in the stomach," so spasm of the stomach means, generally, too much, or improper, food in the stomach.

GASTRALGIA OR GASTRODYNIA.— This difficulty is of the character of neuralgia. The pain is often severe and protracted; frequently extends through to the back between the shoulder-blades, and may occur at a longer or shorter period after eating, or when the stomach is quite empty. In this latter case eating will sometimes afford relief. Gastrodynia does not endanger life, but is often very hard to bear, and difficult to cure. In the more advanced stage it is readily distinguished from inflammation, ulcer, and cancer, by the pain not being increased but often relieved by pressure. There is not tenderness or fever, nor emaciation and pallor, accompanying it, as in cases of organic disease.

ACIDITY.— Many dyspeptics are constantly annoyed by acidity of the stomach, and, the gastric juice being acid, they frequently imagine that the acidity is owing to an "excess of gastric juice." This is a great mistake, for the solvent power of the gastric juice is very great, and when it is supplied in abundance the food it acts upon is very quickly dissolved and passed into the duodenum; whereas, in cases of acidity, the food is usually retained for a long time in the stomach and portions of it are often thrown up hours after it is eaten.

A chemical analysis of the matter regurgitated clearly demonstrates the acid to be lactic and butyric acid. These acids are formed from the fermentation, decomposition, and putrefaction of food, or from chemical changes other than those produced by proper digestion.

If grape sugar is mixed with decomposing albuminous matter, and kept at about the temperature of the body, lactic acid is generated in large quantities. So also if it be mixed with butter or oily matters, butyric acid is freely generated. Similar results are effected in the stomach when the digestion is imperfect; for sugar and oil not only make up a part of many kinds of food, but are often eaten largely in a concentrated form. Then, too, three-fourths of the food usually eaten is of a starchy nature, and by the action of the saliva this starch is changed to sugar, and the mass lying undigested in the warm stomach, readily ferments, decomposition sets in, and plenty of lactic and butyric acid is formed, and gases are generated which cause eructations, and regurgitation of the undigested matter.

Acidity of the stomach is, therefore, generally due to incomplete and tardy digestion resulting in the decomposition and putrefaction of food, and not to an "excess of gastric juice."

HEARTBURN.—This is a painful sensation commencing near the cardiac portion of the stomach and passing up the œsophagus. It should, more properly, be called stomach-burn. It comes on in spasmodic paroxysms which pass off with a feeling as if something hot had been swallowed. The suffering is not increased by pressure; the salivary glands are usually excited to action and if the saliva be swallowed it will often give considerable relief. Heartburn is commonly manifested in from one to three hours after eating; a portion of the contents of the stomach is frequently thrown up, which usually affords relief. The matter ejected is strongly acid and has a hot disagreeable taste. The condition of stomach which gives rise to heartburn is one of great sluggishness; the food being so long digesting, ferments and generates an excess of acid; this acid, although it does not materially injure the mucous membrane of the stomach, irritates and disturbs the cardiac and œsophageal nerves, so as to occasion the peculiar sensations experienced.

Pyrosis or Waterbrash.—The manifestations of this difficulty are similar to those of heartburn; there is this difference however; in waterbrash the matter thrown up is alkaline, while in heartburn it is acid. The salivary glands are excited to action in both cases but if the saliva is swallowed it affords relief in heartburn, while, in waterbrash, it increases the difficulty, an attempt to swallow it creating a feeling as if there were "a ball in the throat." The nervous contraction which causes the sense of constriction in the œsophagus in heartburn, becomes so severe in waterbrash that the passage to the stomach is almost entirely closed. Waterbrash is doubtless caused by an excess of alkali in the stomach, produced by too great activity of the salivary glands, or by the presence of bile or other alkalies: while, on the contrary, heartburn is due to excess of acids.

Vomiting.—Vomiting is, in most cases, a provision of nature for the removal from the system of substances which, if allowed to remain, would be productive of injury. It may depend upon a diseased condition of the stomach itself, upon derangement of the liver, obstructions of the bowels, an abnormal quantity or quality of food, or poisons generated by the decomposition of food. It may arise from a tumor of the œsophagus or stomach, from ulcer or cancer of these parts, from injury to the brain or nervous system, from emetics or poisons taken into the system, or from animal parasites engendered in the stomach or alimentary canal. Diverting the blood and nervous force from the stomach just before, or too quickly after, a full meal, either by violent exercise, or by any intense mental emotion such as is occasioned by disappointment, anxiety, or loss of property, or by sudden joy or grief, may, by suspending digestion, excite vomiting.

There are instances in which vomiting is dependent upon some peculiar idiosyncrasy: a lady of my acquaintance is in the daily habit of eating full meals and immediately throwing up the greater part of it. Instead of regulating the quantity and quality of her food to the condition of the digestion and thus removing her difficulty, she prefers to gorge herself with food and then relieve the distress by vomiting. I know a person who is always nauseated by the smell of butter or cheese, and if these articles are eaten even in very small quantities they excite vomiting. Still another upon whom ripe strawberries have a similar effect. These exceptional cases are rare and can generally be traced to pre-natal influences.

Vomiting is sometimes simply the result of habit. A lady patient had "vomited after every meal for nearly six years." I soon decided that there was no real cause for this, except that the habit was settled upon her, and accordingly told her that she *must not vomit again ;* by diverting her attention for a few days at the times when she had been accustomed to vomit, the habit was at once overcome, and has never returned. Hence it will be seen that vomiting is not always an indication of a diseased stomach; an examination of the matter thrown up will generally indicate the cause.

Among the principal substances vomited, which indicate certain diseased conditions of the alimentary canal or general system, are, mucus, acid fermentations, bile, unchanged food, pus, blood, poisons of various kinds, fecal matter, and animal parasites.

The habitual vomiting of mucus is commonly due to the catarrhal inflammation described as accompanying the sense of weight and oppression.

Undigested food and acid matters are often vomited as a result of over-eating, arrested digestion, the mixing up of different kinds of food which are incompatible, or the decomposition of food in the stomach.

Vomiting of bile is due to disturbed action of the liver, and is a symptom of biliary derangements rather than of a difficulty of the stomach.

Pus is very seldom detected in the vomited matter, from the fact that the mucous membrane of the stomach is so firm and strong as not easily to yield to the condition which produces pus. It is usually found, however, in ulcer and cancer of the œsophagus and stomach.

Vomiting of blood, or grumous matter, is due to rupture of some of the capillaries, or small vessels, caused by a strain, or by ulcer or cancer. This is quite different from the spitting of blood in hemorrhage of the lungs. The blood sometimes oozes into the stomach in such quantities that two or three pints are thrown up; this is a serious, though not necessarily a dangerous, condition. Vomiting of fecal matter is caused by some obstruction in the bowels, such as peritoneal inflammation, intussusception, tumors, etc. Traces of urine may sometimes be detected in the matter thrown up.

This is due to Bright's disease of the kidneys, or some disease which prevents the elimination of urine from the blood.

FLATULENCE.—This is one of the most common symptoms in many cases of dyspepsia. Even in a perfectly healthy state, more or less gas is generated during the digestive process. This is absorbed and used in the system, so that in the highest state of health no gas is expelled from the body. Flatulence, then, is due to an excess of gas in the stomach and alimentary canal. The cause of this excess may be either a failure of the absorbents to take up what naturally accumulates, or an excess is produced during digestion.

The gases which produce flatulence arise chiefly from the decomposition or putrefaction of food in the alimentary canal, and those persons who are troubled with this difficulty either eat a quantity much too large for their powers of digestion, or they partake of a quality that is not adapted to the condition of their digestive organs.

Gas in the small intestines generally occasions the greatest annoyance; there is always much difficulty in passing the ilio-colic or cœcal valve which separates the small intestines from the large, and it often rolls about in the abdomen causing distress and rumbling, sometimes remaining several days without being absorbed or able to escape. It frequently distends the abdomen so as to cause severe pain in the side, and other distressing symptoms; even when the pain or discomfort is slight, it sometimes occasions much trouble by preventing sleep.

When gas, expelled from the mouth has a strong odor of sulphuretted hydrogen, or "rotten eggs," it is intestinal gas which has passed up through the pyloric orifice into the stomach. This gas arises from the indigestion of albuminous food. When gas is belched that has neither taste nor smell it usually comes from the indigestion of starchy food; acid gases arise from the fermentation of both albuminous and starchy foods. Flatulence arising from indigestion of albuminous food is often attended with diarrhea, while that caused by starchy food is attended with constipation.

CONSTIPATION.—Constipation and costiveness are usually regarded as synonymous terms, yet it is supposed that in costiveness there is less fecal matter formed than in constipation. We shall treat them, however, as being identical. Constipation is often so obstinate and troublesome as to be the only symptom complained of; patients often say to me, "Doctor, if I could only get my bowels free, I should be all right, but they never move unless I take something to start them." This taking "something to start them" is very often the cause of the extreme constipation. There are thousands of dyspeptics in this country, who have almost ruined the mucous coat of the alimentary canal by the habit of resorting to "physic" to "carry off" every slight indisposition.

In constipation there is evidently a great deficiency in the expulsive power of the lower bowels, and probably a defective amount of secretion in the colon, as well as a sluggish or relaxed state of the muscular coats. Of the various causes for this, *purgative medicines* should head the list. Preparations of iron, too, being astringent, frequently induce constipation.

Acute diseases, or any conditions which confine the patient in bed for a great length of time; sedentary habits; neglect to attend to the natural call to evacuate the bowels, thus keeping them too long distended; general debility; eating indigestible and insoluble articles, such as skin, gristle, stones and seeds of fruits, and half-cooked vegetables; highly seasoned food, new bread, alcoholic stimulants, tobacco, vinegar, sugar, chalk, slate-pencils, and whatever interferes with the action of the liver, or tends to render digestion imperfect, will induce constipation.

Too highly concentrated food, and the exclusive use of fine flour bread, are the chief causes in many cases. A certain amount of innutritious matter seems necessary to keep the machinery in good repair, and is found to be essential to the well-being of all animals; for, by means of it, a healthy action of the colon, or large intestines, is maintained. Every part of the system must have work to do or it loses its ability to work.

Highly concentrated food, or that which is almost entirely nutrient with very little waste material, gives the colon so little to do that it becomes disabled and can do nothing. Hence, while we should avoid the extreme of eating too exclusively of the coarse and innutritious, we should not by any means exclude it entirely.

A rheumatic or neuralgic affection of the diaphragm or of any part of the abdominal walls, may sometimes cause constipation—the patient, dreading the pain, withholds the natural voluntary effort to relieve the bowels.

Constipation is often entirely due to inflammation or ulceration of the stomach. The sympathy between the stomach and rectum is so great that the moment anything irritates the former, even though it may not cause suffering to the patient, the rectum is affected by it, contraction takes place, and, if the stomach difficulty be long continued, the contraction at the rectum becomes permanent, often resulting in stricture. Sometimes, after a long period of constriction, the contractile power is lost, and there is such relaxation that no action can be induced; in these cases the "bowel comes down" with every effort to secure a passage. Patients troubled in this way will do best to evacuate the bowels in a standing position.

Constipation may arise from some obstruction in the bowels, such as a lodgment of fecal matter forming concretions in the canal, tumors, adhesion of the walls, scars of abscesses or ulcers, hemorrhoids, fissures of the anus, compression of the sides of the bowels, hernial protrusions, intussusception, and, in women, it may be due to retroversion of the womb, or to pressure of the uterus in pregnancy.

Constipation is, perhaps, more often due to a disorder of the general system than to difficulties in the alimentary canal alone. The excretion of the effete matter and waste tissues of the body into the intestinal canal, is in some way interfered with, and constipation results. It is an almost inevitable accompaniment of "small waists." It is often met with in old people. It is attendant upon heart-disease, chlorosis, general debility, contracted or deranged liver, and some cases of consumption, all of which difficulties originated, perhaps, in dyspepsia.

DIARRHEA.—Diarrhea is sometimes, though not always, a symptom of dyspepsia. It may be due to overeating, or to eating of crude, indigestible foods which irritate the alimentary canal; miasms in the atmosphere frequently produce purging; so also does an ulcerated condition of the bowels; and purgative medicines so weaken the digestive apparatus that, in certain temperaments, diarrhea becomes a habit. In diarrhea, as in vomiting, the character of the discharges gives some indication of the seat of the trouble. When yellow, brown, or green bile is discharged, the liver is out of order; when undigested food and mucus is passed, the stomach or intestines, or perhaps both, are affected. Discharge of serum, or watery looking discharges, show a defect in the absorbents. Discharges of pus and blood are evidences of abscess, ulceration, cancer, or the rupture of blood-vessels. In nearly all cases of diarrhea there is either some defect in the absorbing power of the intestines, or an excess of fluid is thrown off from the intestinal glands. In some cases constipation will obtain for a few days and then alternate with diarrhea.

PILES, OR HEMORRHOIDS.—The presence of these tumors in the rectum is an indication of bilious dyspepsia. The liver being obstructed, the venous, or impure, blood—which passes through the liver on its way to the lungs to be purified—is forced back into the veins of the rectum and lower bowels; these veins being thus surcharged, become enlarged, the walls thicken in order to counteract the pressure, and thus tumors or piles are formed, which give rise to the most serious trouble.

CEPHALALGIA, OR HEADACHE.—Nearly all forms of headache are influenced more or less by deranged digestion, and some cases are entirely due to this cause. Sick headache, as it is commonly called, means little more than a severe headache caused by a sick stomach, and if the sickness of the stomach is removed there will seldom be further trouble with the head.

Sick headache is with some, a regular, periodical difficulty, occurring weekly, fortnightly, or monthly; with others, it comes on irregularly, depending upon the regularity of diet, hours of eating, and uniformity of mental and physical exercise. It usually occurs in paroxysms lasting from four to twenty-four hours. The pain in the head varies much in degree in different cases, or even at different attacks in the same case. It is generally confined to the forehead, though it sometimes extends to the back portion, and even through the whole head. The character of the pain is varied in different cases; in some it is sharp and lancinating, in others, dull and heavy, in others still, it is as if the head would burst.

The appetite is usually lost, and there is often a loathing of food. The face is pallid, the eyes suffused, the temples throb, and there is great nausea, which, after a time, is generally followed by vomiting. After the contents of the stomach are evacuated, the head is very much, if not entirely, relieved. This effort at vomiting is usually followed by drowsiness, and after a good sleep the patient feels like himself again. When nausea and vomiting do not occur, it is called nervous headache.

PALPITATION OF THE HEART.—This is a frequent accompaniment of disordered digestion. It is a cause of great uneasiness and often engenders the idea that there is some organic disease of the heart. I am frequently consulted by patients troubled with palpitation and irregular pulse, who, after an examination, express great surprise and gratification at being assured that their hearts are structurally sound, and that the palpitation arises from indigestion alone.

Palpitation of heart, and the irregularity of pulse accompanying it, are partly due to reflex nervous action, which takes place between the heart and stomach; it is also due in a measure to distention of the stomach by food, or by flatulence, which inteferes with the descent of the diaphragm thus impeding the free working of the heart and lungs. Sexual excesses are also a frequent cause of palpitation.

HYPOCHONDRIA.—This is, occasionally, one of the very worst symptoms associated with indigestion. Nearly all dyspeptics have seasons when, from some cause, they are "out of sorts" with everything; feeling, as they usually term it, "decidedly blue." The true hypochondriac is nearly all the time in this condition and really suffers from what may be called a species of insanity. Such, are mentally depressed, gloomy, always looking on the dark side, constantly anxious about something, frequently imagining that they have some dreadful, incurable disease. They are sad, timid, irresolute, listless, lack the energy or activity to engage in any undertaking, and seem totally unfit for either mental or physical exertion.

Constipation of a most obstinate form is almost always complained of in these cases, and it is not improbable that many of their morbid feelings are due to the absorption of fecal matter. This matter, circulating in the blood, irritates the nerves, and poisons the brain. Such patients frequently imagine that they have "softening of the brain;" but, as my old preceptor used to say "in ninety-nine cases out of a hundred, softening of the brain means hardening of the bowels." Sexual abuse is very often the foundation of hypochondria.

COLD FEET AND HANDS.— Few people consider that cold feet and hands indicate disease; this condition should, however, be regarded as evidence of danger in prospect if not present, and should receive the most careful attention. Coldness of the extremities generally arises from want of a proper quantity of blood in them. If there is too little here there must be too much somewhere else, and this is generally in the mucous membrane of the alimentary canal, in the lungs, in the liver, or perhaps in the heart; and serious consequences are sure to follow an overplus of blood in any of the internal organs. If the coldness arises from the poor quality of the blood, as is sometimes the case, the most careful treatment is requisite in order to renovate and purify the vitiated life-stream.

TREATMENT OF DYSPEPSIA.

To those who have made themselves familiar with the various forms of dyspepsia, the variety of causes producing it, and some of its most prominent symptoms, it will be apparent that no definite plan of treatment can be laid down which will be applicable to every case. Many cases are so thoroughly chronic in form, and so obstinate in character, as to require a more vigorous and decided, or a more careful and scientific, course of treatment than can be pursued without the constant care and advice of a physician; yet a majority of dyspeptics would obtain complete and permanent relief by carefully following the treatment herein advised.

What the human system most needs for the maintenance of health or the removal of disease is plenty of good blood, and without this no gland can prepare proper fluid, no organ can rightly perform its function, no bone, muscle, nerve, or other tissue, can properly grow or develope, nor can its waste be efficiently repaired. How to obtain plenty of good blood when the very organs which manufacture blood are out of order, becomes, then, a most important question.

It is from disobedience to the laws of our being that the difficulties have arisen, and strict obedience to those laws can alone insure restoration to health. Nature invariably does the work. Slowly but faithfully she performs her task, requiring of us to remove all obstacles from her pathway, and supply her with plenty of the best material for carrying on the work.

There are certain general rules of hygiene which can be safely followed by all dyspeptics, the first of which, relates to foods.

DIET.—Adapt the food, both in quantity and quality, to the condition of the digestive organs.

There are two dietetic systems each of which has been extensively advocated and pursued. One, is the prescribing for dyspeptics a rich, generous diet; they are advised to eat plenty of beef-steak, roast beef, oysters, and rich food generally, and to take a little brandy, bourbon whiskey, wine, ale, cider, or some stomach bitters, with their dinner, and "eat all they want." While this regimen may seem to agree with some, it is positively injurious to many others. When dyspepsia is due to congestion, inflammation, catarrh, or any difficulty in the stomach itself, the disease will always be aggravated by such a course.

Mr. R——, a catholic clergyman of Oswego, N. Y. was a case in point. He came under my care after eight years severe suffering from gastric dyspepsia; pain in the stomach, constipation, and hypochondria, being the leading symptoms. His "bowels had not moved for years without a dose of physic," and he was so depressed in spirits as to be on the verge of insanity. He had resigned the charge of his church, had exhausted the skill of the medical men in his vicinity, and been treated successively by four of the leading physicians in New York, most of whom had advised "generous living," together with the remedies usual in such cases.

I advised him to abstain from meat for a time, and gave him fruits and farinaceous food instead. This diet, together with wet compresses and fomentations to the stomach and liver, hip-baths, half-baths, and a few electric and Turkish baths, made a thorough cure in six weeks, and when I saw him some time afterwards no relapse had occurred.

The other system is that pursued by some of the leading hydropathic physicians, viz., putting all patients on a very strict and abstemious diet; depriving them at once of meat, milk, butter, sugar, salt, eggs, and other common articles of food, and giving them only graham bread and apples, or graham mush, fruits, and vegetables. Whilst this plan is admirably adapted to some cases, and is just the treatment needed, it is necessarily and almost inevitably fatal practice in others. I have seen patients under this regimen lose from half a pound to a pound of flesh a day, till they had lost twenty, thirty, or even fifty pounds, and when so weak and reduced that there was no prospect of recovery, they were sent home, either to become disgusted with the treatment or to die among their friends.

However beautiful in theory this practice may be, the present condition of the race is such that a complete and sudden abandonment of all animal food and condiments, would be attended with fatal results in a large number of cases. Changing the dietetic habits is very different from leaving off the habit of using alcoholic stimulants, tobacco, or opium. These latter substances are not nutritious; they neither assist the growth nor repair the waste of the body; and, although the system may receive a severe shock by suddenly leaving them off, yet it will soon rally, and all the functions go on as well as, and even better than, before. But when a sudden change is made in the food, the nutrition of the body is interfered with; and, although the new diet may contain all the nutritive elements, yet the digestive organs having been so long accustomed to a different kind of food, may not be in a condition to obtain from the new regimen a sufficient amount of nutriment to supply the wants of the system.

This was the case with Mr. T—— of Lebanon, N. Y. He had been suffering from dyspepsia for two years when I saw him; had been living on coarse food, excluding meat, butter, milk, sugar, salt, etc., pursuing the plan recommended by one of the leading vegetarian physicians of the country. He had lost thirty-five pounds, was weak and nervous, and totally unable to attend to business. His blood was so depraved that boils and sores had broken out upon his legs and arms; he was extremely irritable, and his digestive powers were very much enfeebled, and rapidly becoming weaker. I advised a decided change in diet;—a slice of roast beef, or of beef-steak, each day, a little milk and butter, good graham bread, and other things to correspond. In three weeks he had gained seventeen pounds, with strength in proportion; and he wrote me several months afterwards that he still continued to gain.

The sufferings of many dyspeptics are often increased by constantly eating large quantities of graham mush, bread, raw apples, and vegetables. By this course the acidity is often aggravated, flatulence becomes an intolerable annoyance, and many other unpleasant symptoms are developed. I recommend and advise the moderate use of this kind of food for most dyspeptics; it is the exclusive and excessive use of it for all, that I condemn.

Quantity of Food.—To dyspeptics, this is of the first and greatest importance; for, no matter how healthful the quality, if eaten in improper quantities the system can never regain its proper tone. No more should be taken at any meal than can be well digested. A little good blood made from a small quantity of food that has been well digested, will give more strength than a larger quantity of poor blood made from food that is imperfectly digested. Dr. Watson says, "the amount of food introduced into the stomach should be kept within the limits of its capacities and powers; and these limits are transgressed if an uneasy sense of fullness is produced." The appetite of the dyspeptic is generally a poor guide either to the quantity or quality of the food to be eaten. The system feels the want of nutriment which the deranged organs are unable to supply, hence the appetite is often craving. It is a good rule for these patients to put all the food they intend to take at a meal upon their plate before commencing to eat, and then to take it in small mouthfuls, masticating slowly and insalivating thoroughly.

Two Meals a Day.—I believe that most dyspeptics would be improved by eating only two meals a day, say at eight or nine o'clock in the morning, and from three to five in the evening, without a mouthful at any other time. The benefits to be derived from this plan are: First, they secure a more perfect digestion of the food taken, and hence get a better quality of blood. Second, they are not so liable to overeat, most patients finding it easier to abstain entirely from food for a time than to stop when they know they have eaten all they ought. This is especially true with those who have morbid appetites. Third, it gives the stomach a better opportunity to rest; with most dyspeptics, digestion goes on slowly, and often one meal is not fully digested before the next is taken. Yet I do not advise the two meal system in all cases; some stomachs can take only a very small quantity of food at a time, and it may be better to give that little, three, or even four times a day, than overload the stomach. But for those who are able to eat a fair amount, two meals are much the best.

A majority of the people in this country eat more food than they really need. The appetites of many are perverted from their childhood up, and they eat to gratify this perverted appetite rather than to satisfy the actual wants of the system. Children are fed on pastries, sweetmeats, candies, spices, and rich food, till they have no relish for a plain nutritious diet; the result is, by the time they arrive at adult age (if they live so long) many are dwarfed in size with teeth decayed, beauty faded, hair gray, and health gone, they barely live, without enjoying life or knowing aught of its real pleasures. Most old people in this and every country have been uncommonly small eaters. The early Christians were exceedingly simple in all their habits of eating and drinking, often going one or two days without food.

It may be taken as a rule, to which the exceptions are few, that those persons who eat fast, and in large quantities, are universally short-lived, and generally die suddenly of acute diseases. Those plants, trees, and animals which take their nutriment slowly and grow slowly, live the longest, and *vice versa.*

I have had several patients to whom I gave but one meal a day for a short time, and the result has been good. This one meal was more perfectly digested, made better blood, and the blood was better oxygenated by the lungs, and better assimilated by the tissues than it would have been if more food had been eaten. Acidity of the stomach, heartburn, flatulence, and many other symptoms will soon disappear on this plan. Several goblets of soft water may be drunk during the day, but none should be used during, or just after, the meal. The amount and kind of food used must depend upon the phase of dyspepsia with which the patient is troubled, but many are able to digest varieties of food when they eat but once or twice a day, which they could not digest at all when eating three times. The diseased stomach must work some, but it should not be taxed beyond its powers; we do not use inflamed eyes, or a sore and bruised limb, but give the injured part all the rest we can.

In regulating the diet of dyspeptics it must be remembered that digestion is a complicated process; that it requires the action of the saliva, gastric juice, bile, and pancreatic and intestinal juices; that each of these juices has an especial power in the digestion of certain kinds of food; and when an organ which secretes any of these fluids is diseased, that organ must be favored as much as possible, and, to a great extent, the others must do the work. If the salivary glands do not work properly, avoid starchy food; if the stomach is the seat of the trouble, abstain from meats; if the bile and pancreatic fluids are disordered, butter and oily food should be prohibited.

If, after abstaining from each of these classes of food successively no marked good results are produced, the patient may be pretty sure that he is eating too much, or too many kinds; though if he be one of the rigid dietarians he may be eating too little, and while he should be ready to reduce the quantity if necessary, let him not deteriorate the blood and starve the tissues by taking too little nourishment. Sometimes bread and meat with no other food for a time, is beneficial; sometimes bread and milk; sometimes bread and fruit; sometimes vegetables alone.

FOODS AND DRINKS TO BE AVOIDED.— Strong tea, coffee, alcohol, tobacco, pork, lard, melted butter, gravies, rich soups, pies, cakes, and puddings, biscuits, new bread, salted and fried meats, candies, sweetmeats, mustard, pepper, spices, vinegar, pickles, cheese, radishes, cucumbers, and unripe, or even raw, fruit, except it be very mellow; in some cases, I should prohibit meat entirely, in some, butter, and in some, I would not allow sugar, or much starchy food. Fermented or yeast bread is also injurious to most dyspeptics. Fermentation is a rotting process and destroys the life-properties of whatever is subjected to its action. In fermented bread, the life of the flour is partially destroyed, and consequently it is much more liable to take on those putrefactive changes in the stomach, which give rise to acidity, heartburn, and flatulence. A large proportion of the baker's bread sold in this country is not good even for healthy stomachs; besides the putrefying process which it undergoes, there are many injurious substances such as alum, chalk, hydrated sulphate of lime, plaster of paris, white earth, etc., mixed with the flour before it is fermented.

WHOLESOME BREAD.—Dyspeptics should use unleavened bread. This may be made in different ways: First, by simply mixing either fine or graham flour with water or milk, making a soft batter which should be poured into "gem-pans," or muffin rings, previously heated, and baked in a very hot oven. If rightly made, this bread is very sweet, light, palatable, and digestible. It can be made in every family, and may be eaten as soon as baked. Second: by mixing graham flour with hot water or milk, stiff enough to knead,—roll to about a half inch in thickness and cut in narrow strips, or into cakes not larger than two inches square; bake at once, the oven being very hot. Third: by using carbonate of soda and hydrochloric, or muriatic, acid, which, in certain proportions, unite and form chloride of sodium, or common salt. Their union generates a gas the escape of which, while baking, vesiculates the bread. The exact proportions to be used are 1 oz. carbonate of soda, 1 oz. 53 grs. muriatic acid, to 7 lbs. of flour wetted with 2 1-2 pints of water—the flour to be wetted thoroughly, the soda dissolved and stirred in, and lastly the acid mixed in very quickly and evenly, and the dough put in pans and placed in the oven as speedily as possible. Fourth: by mixing flour with water charged with carbonic acid gas, which gas escapes when heated, making the bread very light. This is called aërated bread, is mixed under pressure by machinery, and is decidedly the most healthful bread found in our markets; it is delicious to the taste, contains all the nutrient properties of the flour, is easily digested, and makes good blood. Neither this, nor the bread mixed with soda and acid, should be eaten fresh.

Varieties of Foods.—In cases of great weakness of the stomach, without inflammation, the breakfast may consist of a little white, unfermented bread, with a very little butter if it is well borne, a soft boiled egg if it suits, and a baked sweet apple; or a little oat-meal porridge, which should be boiled at least an hour. If the stomach is very delicate or irritable the porridge may be made of fine flour, using equal parts of milk and water, and having it thoroughly cooked. For dinner, a mutton sandwich—the mutton being chopped very fine makes it easier of digestion. All meats should be cut fine for delicate stomachs as the labor of digestion is much lessened thereby. Arrow-root pudding, rice, sago, corn-starch, and tapioca, without eggs, also stewed apple and pears, may be eaten at different meals.

Strawberries, raspberries, gooseberries, and currants, should be avoided. For supper, a slice of bread with a little milk may be used. Avoid drinking even half a tumbler-full of cold water at a time. Sips of cold water are good, but, if not well borne, take off the chill.

The Hygienic Cook Book * contains a long list of articles, and the way to cook them, most of which are admissible if used in accordance with hygienic rules. No dyspeptic, however, should partake of more than three or four varieties of food at one meal, and in many cases even less than this would be preferable; the various kinds of food which the stomach will tolerate should be taken at different meals.

FREQUENCY AND REGULARITY OF MEALS.—A good rule for dyspeptics is the one adopted by Abernethy, viz. "let the stomach have time to perform one task before another is imposed upon it." It should also have an hour or two for rest after that task is performed. Most cases of deranged digestion require from four to six hours to digest an ordinary meal; then the organs need an hour or two for rest. During the hours of rest, from one to three goblets of tepid, cool, or cold, water may be drunk to allay any unpleasant sensations.

Meals should be taken at regular hours. For very feeble dyspeptics this is absolutely essential.

COLD FOODS.—Dyspeptics should not eat their food cold, for the digestive process can not be well performed unless the temperature of the food is about 100°. If eaten cold, heat to accomplish this elevation must be conveyed to the stomach by means of the blood, and, in order to warm the mass, an abnormal quantity may be sent to the organ, the tendency of which will be to cause

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* Price 30 cts. Address MILLER, HAYNES & Co., 41 West Twenty-Sixth Street, New York.

chilliness at the surface of the body, as well as congestion and inflammation at the stomach. The sudden lowering of the temperature of the stomach while it contains food,—which is often done by drinking cold water, or eating ice-cream—retards digestion, and is liable to produce bad results.

Hot Foods.—Very hot food should also be avoided, for the power of the pepsin is destroyed if heated above 140°. Experiments have proved, however, that the higher the temperature short of 140°, the more energetic the digestive process. Some dyspeptics are benefited by drinking warm water, instead of cold, whenever thirsty. It is best not to drink at all with meals; no animal except man ever drinks while eating.

Purity of Foods.—No other nation uses as much animal food as do Americans, and none suffer so much from debility and indigestion. The hardy Scot with his oat-meal, and the tough-muscled Irish with their potatoes, prove, at least, that physical strength is not dependent upon animal food. All those animals most noted for strength and endurance, those which are used as beasts of burden, subsist entirely upon vegetable food.

All animal food comes originally from the vegetable kingdom. Yet vegetable food is much the purer, for the reason before stated, that "vegetables store up force" while "animals liberate force;" and, in the process of liberating it, a certain amount of oxydation or destruction of tissue takes place, and this used-up tissue becomes effete matter which must be eliminated from the body, and thrown off in the form of carbonic acid gas, perspiration, urine, and feces. This destruction of tissue is constant, and when an animal is slaughtered, it dies with a large amount of these excrementitious matters in its flesh. Now when this flesh is eaten as food, these matters enter the system, infecting the materials which are to become a part of man's body.

An active, laboring man who lives out of doors and takes plenty of physical exercise, can readily throw off the impurities thus taken in, but one of sedentary habits, who uses only the brain, and takes little or no muscular exercise, is sure to become diseased if he eats largely of animal food.

Even Prof. Blot, the great French gastronomer, says, "A man who has a sedentary occupation, who does not breathe the pure air more than once a week, should not eat steaks more than once a week, and other meat once every other day. * * * * Instead of becoming strong on a beef diet a man of sedentary habits, withers like a leaf in the Fall, becomes dyspeptic, consumptive, and dies before reaching half the age he would have reached if he had paid attention to his food." Fruits, grains, and vegetables form the purest food, but they should be thoroughly ripened or matured before they are used, for it is not until this period that the full measure of life and power can be obtained from them by the animal organism. It is of the greatest importance, also, that they should be fresh, or in a state of perfect preservation, for if they are partially decayed the blood formed from them is necessarily deteriorated, and from vitiated blood the body can never elaborate healthy tissue.

BATHING.—"Cleanliness is next to godliness," and water is God's agent by means of which cleanliness may be secured. The seven millions of little pores whose mouths open upon the skin are sure to get clogged unless kept free; and, being clogged, the mass of impurities which they were designed to carry off, will be retained within, causing derangement and disease of the internal organs. Bathing, therefore, tends to keep the inside, as well as the outside, of the body, clean. It purifies the blood, renders the skin soft and pliable, increases external circulation, relieves internal congestion, keeps the brain free and the thoughts clear, and gives vigor and strength to every nerve, muscle, and tissue; in short, it cleanses, invigorates, renovates, and regenerates the whole man.

A daily bath to cleanse the skin and improve the external circulation, should be the rule for all, except those who are too weak and feeble to secure a reaction.

The sponge or towel bath, full bath, half bath, rubbing, and dripping, sheet, wet sheet pack, half pack, stomach pack, shower bath, hip bath, foot bath, hot fomentations, wet compresses, and the wet girdle, are all applicable in different cases.

For special directions in making these applications, see the Author's work entitled "How to Bathe: A family guide for the use of water in preserving health and treating disease." * In addition to the appliances described in "How to Bathe," I have recently introduced into my practice for local applications, the "spongio peline," "macintosh," and "proofed cotton flannel," which articles were first brought into use for these purposes, by Mr. John Smedley in his immense Hydropathic Establishment in England. These articles are invaluable in all cases where vitality is low, circulation feeble, and animal heat deficient.

SPONGE OR TOWEL BATH.—The best and safest bath for daily home use is the sponge, or towel, bath. By using cold water, and rubbing the skin rapidly and vigorously, a most lively and glowing sensation is

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produced, which is largely conducive to health. When the bather has not sufficient vigor to secure a speedy reaction the water should be tepid. Celerity and vigorous rubbing are requisite to insure good results.

FULL BATH.—The full bath, or the half bath, may be taken by people in general, two or three times a week, when the appliances are at hand. Feeble patients, however, should very seldom be immersed in water, and some people of intensely nervous temperament and feble digestive powers, can never take a full bath without injury.

RUBBING, OR DRIPPING, SHEET.—This is a very excellent bath. It may be given cool or cold so as to be either a stimulant or a tonic, and when tepid or warm, its effect is soothing or sedative; this bath requires the aid of an attendant, and is, therefore, less easy of application than the sponge, or the full bath.

WET SHEET PACK.—This should be used only by one who understands just how and when it should be given. The half pack, once or twice a week, may be taken with great benefit by almost any one who has a moderate degree of strength and good reactive powers. The stomach pack, judiciously used, is applicable to every phase of stomach difficulty; this, as well as the half pack, may be applied for a half hour to an hour and a half, or two hours—the feebler the patient the shorter the time and the milder the water, and *vice versa*.

SHOWER BATH.—The shower bath should be used sparingly unless the bather is quite strong and vigorous; and even then cold water should be seldom used, and never allowed to fall upon the head without the protection of a cap.

Hip Bath.—Hip baths are particularly beneficial in dyspepsia—they may be used warm, tepid, cool, or cold, as the condition demands; the duration being from two minutes to half an hour. The bather should be covered with a blanket or quilt, and the bowels, hips, and back, should be thoroughly rubbed while in the bath—by the patient, if able, if not, by an attendant.

Foot Bath.—The warm foot bath, for five or ten minutes, each night before retiring, will relieve the congested stomach or other surcharged organs, soothe the nervous system, and promote sleep.

Fomentations.—Hot fomentations are invaluable in cases of torpid liver, and of severe pain in the stomach or bowels: they should be applied for a half hour, and, when removed, a mustard plaster may be placed over the part until the skin is quite red; a sponging with tepid water should then be given. In congestion and inflammation of the lungs, stomach, or bowels, fomentations applied along the spine, followed by the mustard plaster, with cool, wet compresses to the abdomen, will afford speedy relief. In gastric, and also in bilious dyspepsia, hot fomentations over the liver, stomach, and bowels, for an hour each day, or every other day, will aid materially in the cure. On removing them the parts should be bathed in cool water, and a cool, wet compress with "spongio peline" applied.

Compresses.—The wet compress over stomach, and liver, or the wet girdle around the body, covered with spongio, macintosh, cotton flannel or cotton cloth, may be worn every night for weeks or months, and in some cases it should be worn day and night. If the bowels or kidneys do not perform their functions well, apply the compress or girdle over these organs.

CAUTION IN USING WATER.— Much water treatment induces active elimination, and, consequently, the rapid change of tissue. Great caution is necessary, therefore, in the use of water in cases of feeble digestion, for rapid waste with little or no repair, necessarily exhausts the strength. To a certain point this waste is beneficial, even with little repair, but the *power to repair* must be strong or the patient, before he is aware, may become too much reduced.

TURKISH BATH.—Active laboring people usually perspire freely, and this is one secret of their general good health. There are thousands of persons, however, who seldom or never perspire, and the consequence is derangement and disease. The Turkish Bath is the most effectual process yet devised by which heat may be so applied and perspiration induced as to preserve and promote health, while, at the same time, it suppresses and removes disease. This bath is especially valuable in the treatment of dyspepsia and indigestion. As a blood purifier it has no equal. Ordinary baths cleanse the skin and wash away the impurities from the mouths of the pores, but the Turkish, or Hot Air, bath permeates every tissue and drags forth the seeds of disease which lie within.

The manipulations, shampooing, etc., as well as the heat, tend to increase external circulation and remove internal congestion. They also arouse action in the liver and bowels and thus remove constipation, piles, and other difficulties consequent upon a torpid condition of these organs. The sense of soreness, weight, and pain, is relieved, and acidity, heartburn, flatulence, diarrhea, and hypochondria, are overcome. In short, as Erasmus Wilson says, "we do not ask ourselves what diseases are benefited by the bath, but what diseases can resist its power to cure." *

Exercise.—Dyspepsia can not be radically cured without some form of exercise. Man did not have four hundred and seventy muscles placed in his body to help him keep still. Bad feelings often arise from a want of assimilation and use of the blood made. People eat too much and exercise too little, and this causes disease. Horseback riding, rowing, ball playing, sawing wood, hoeing in the garden, walking, etc. are great aids to digestion. Variety in exercise is desirable, for thereby different sets of muscles are called into action. The exercise, whatever it is, should be carefully adapted to the condition. Little and often, is, for feeble patients, a very important rule. The more a person digests, the the more he may exercise; the more he *eats*, the more he *must* exercise. The old maxim, "live on a sixpence a day, and earn it," would, if practiced, be of great benefit to many.

The Movement Cure.—Swedish movements are, for many patients, far better than active exercise. As this method of cure cannot be extensively used without apparatus, I shall give only a few illustrations, such as are applicable to home use.

Gentle percussion with the ends of the fingers, or with the fists, or palms of the hands, over the stomach, liver, and abdomen, will do good in many cases. Pressing, wringing, and percussing the muscles of the arms and legs, increases the circulation in those parts.

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* See the Author's work on The Improved Turkish or Roman Bath. Price 20 cts. Address Miller, Haynes & Co., 41 West Twenty-Sixth Street, New York.

When the liver is torpid, percussions, and shakings or vibrations, in the region of that organ, if practised daily for weeks or months, will arouse it to action and go far toward restoring health to the system.

Gentle kneading and vibrations of the bowels will usually overcome constipation; percussion, vibration, and pressure, upon the back, just below the shoulder blades, will often relieve intense suffering in the stomach or bowels. A great variety of movements of this kind may be improvised by every patient and they will materially improve the circulation, render assimilation more perfect, and thus aid digestion. For most cases, however, a thorough, scientific application of thc "movements" for a few months, by those who have the apparatus, and who understand the philosophy, and the precise method of applying them, will accomplish more than any amount of home-treatment can possibly do.

GYMNASTICS.—The system of light gymnastics is applicable, in a greater or less degree, to nearly every case of dyspepsia. A few directions only can be given here.

Bend the body at the hips from side to side;—forward and backward;—rotate the body upon the hips to the right;—to the left;—sit down upon the heels and rise up. Closing the hands, bring them to the breasts, raise the elbows to a line with the shoulders, then bring the arms forcibly down to the body;—again in same position, throw the elbows backward and forward as far as possible;—elbows and shoulders thrown back, fill the lungs, and with the hands, or fists, percuss the chest, stomach, and abdomen for a few minutes. Standing on left foot, forcibly kick right foot forward, (ankle joint free,) then backward, then alternate;—same with left foot. On left foot again, kick right foot sidewise, first front of left foot, then to the right, then behind left foot, then to the right again;—same with left foot. *Repeat each motion several times in succession.*

Many similar exercises may be used, but the patient must be careful not to overdo.

THE LIFTING CURE.—This is a system of exercises by means of lifting, the weights being graduated to the strength and condition of the patient; it is calculated to bring into harmonious action every bone, muscle, tendon, and tissue of the body. It should be used only by those who understand its effects and the condition of the patients to whom it is applied. When judiciously applied, it promotes healthy action, restores lost functions, increases the size and strength of the voluntary muscles, gives tone and vigor to the involuntary muscles and ligaments which form, and keep in place, the heart, stomach, liver, and other internal organs, and restores these organs, when displaced, to a normal position.

The contraction of so many muscles as are called in play by this exercise, tends to regulate the force of the heart's action, to equalize the circulation, and warm the feet and hands, as well as the entire surface of the body. It forces out effete matters from the tissues, and makes all the excretions more free. By this means assimilation is more perfect, the body becomes better nourished, and the new tissues formed are of an improved quality.

The Lifting Cure, when used in connection with bathing and other hygienic agents, is a valuable aid in the treatment of dyspepsia.

TRAVELLING.—The passive movements of all the tissues of the body, which travelling necessarily involves, is sometimes almost miraculous in its effects. A sea-voyage, even though it be but short, will, in some cases, "act like a charm." A long walk of several hundred miles—the patient walking only a short distance in a day at first, gradually increasing—is in many cases a sure cure. The being out of doors, the freedom from home cares and business perplexities, the exercise, the change of air and scene, all conspire to bring into harmonious relations the various organs and tissues of the body, and thus overcome difficulties which had seemed almost irresistible.

Mr. A——, a clergyman in Ohio, had been for years a sufferer from dyspepsia; he was obliged to resign his pastoral duties, had exhausted the different methods of cure, and finally started on a walking tour to Alabama and back again;—was some months on the trip and returned in prime health, hearty and vigorous.

Mr. B——, a miserable dyspeptic, "wasted to a shadow," walked from New York to Maine and back again—began to gain from the first, and has enjoyed good health ever since his return.

ELECTRICITY.—Electricity is now recognized as an important remedial agent in the treatment of the sick; and in no disease is it of greater value than in some forms of dyspepsia. It may be applied by means of the small battery, or in the electric bath, the latter being most efficient in obstinate cases.

We do not believe that "electricity imparts vitality to the system," nor that "it is identical with vital force," but we do believe that it can be used to arouse to healthy action dormant organs whose function it is, to sustain vitality. By its use the involuntary muscles, and also the nerves, are regulated in their action, the natural secretions of the stomach, liver, pancreas, and small intestines are promoted, congestion and inflammation, removed, the circulation is equalized, pain, allayed, the skin, kidneys, and bowels, are aided in eliminating impurities from the blood, and, in short, all the natural secretions and excretions of the body are encouraged and regulated. Severe constipation is often relieved by a few applications, the result being effected by causing a free action of the liver, and by exciting more vigorous contractions in the muscular coats of the large intestines.

Animal Magnetism.—This is another useful agent in many cases. If a strong magnetizer lays his hand just below the breast bone, over the solar plexus, for a few minutes, or passes his hands over the stomach and liver, he can often afford great relief. These manipulations impart a salutary stimulus to the digestive powers, quiet the nerves, and eminently promote sleep.

Rest and Sleep.—Rest should be taken frequently. Many very feeble women are enabled to accomplish a great deal by judiciously lying down a few minutes several times a day. Rest, or only the gentlest exercise for an hour or two after eating, is essential for those whose digestive powers are feeble.

Rest for the mind is also of the first importance for many dyspeptics. No intense excitement, whether pleasant or otherwise, should be indulged in by those of a nervous temperament. Calmness and a sort of vegetative existence is indispensable to the recovery of the very feeble. This is especially necessary for an hour before, and two hours after, each meal; and also for three hours before retiring at night. The patient should refrain from feeling anxious lest what he has eaten will hurt him. There is no surer way of increasing dyspeptic troubles. Let him forget himself as much as possible, and leave it for others to observe his symptoms and direct his course.

The dyspeptic's bed should be easy and inviting; it should never be made for at least two or three hours after rising, but should be thoroughly shaken, aired, and sunned. Feathers should be discarded. An early hour for retiring must be enjoined, for it is only during sleep that assimilation takes place to any great extent; only during sleep that the food we eat is formed into tissue; and with many dyspeptics it is the want of proper tissue-formation that first gets the machinery out of order. Children, even little babies, especially in cities, do not sleep enough.

Some persons are so sensitive to the influences of attraction and repulsion that when lying with the head to the north the sleep will be more sound and refreshing. It is best always to give patients every possible advantage, however slight, that may aid in their recovery.

It is better for a sick person to sleep alone. It is true that they sometimes derive strength from sleeping with those who are healthy, but in nine cases out of ten the chances are that they will receive more harm than good. There should be covering, sufficient for warmth, but not to be burdensome.

FRESH AIR AND SUNSHINE.—We can not have life without air. We can not have health without pure air. Oxygen, of which air is mostly composed, is the active agent by means of which life and health are preserved; it enters the lungs, penetrates the delicate membranes, mingles with the blood, changing it to a vivid crimson hue, goes with it to the heart, and is sent thence to every tissue of the body. This stream of oxygen is incessantly flowing, and if it be cut off from any part, the action of that part ceases. Without oxygen new tissues could not be built up, and oxygen is the immediate agent which breaks down the old tissues and forces them out of the system.

In the destruction of tissue by oxygen, force is produced and heat generated. Deep breathing, therefore, will materially aid in increasing the power, and in maintaining the heat, of the body, and also in restoring it when depressed. Living-rooms and sleeping-rooms should be thoroughly ventilated night and day. Dyspeptics should live in the open air a good part of the time; if able to exercise but little, they should be well protected and sit, or lie, out of doors,—not on the ground, but on seats or benches for the purpose. Living out of doors, with no other special treatment, would, of itself, cure many dyspeptics. Cold air is not always pure air, neither is warm air necessarily impure; the rooms occupied by a feeble dyspeptic should be kept thoroughly warm, and, at the same time, thoroughly ventilated.

Sunshine ripens the air and fits it for use. Dyspeptics need the sunshine and should sit or lie in it.

CLOTHING.—The stomach and liver should never be pinched or compressed by the clothing. These organs *must have room for action* or they can not recover their lost power. Corsets and whale-bones are prohibited. So also are tight waists and bands. No article of clothing should be allowed to rest upon the hips or bowels, but each and all should be supported from the shoulders, either by suspenders or a waist. Sufficient clothing should be worn at all times to insure warmth. The knees, lower limbs, and feet may need extra covering—they should be kept thoroughly warm by foot baths, by rubbing, and by clothing; many get the idea that they must keep as cool as possible—this is well enough if the digestion is good, but when digestion is feeble, little food can be taken, little blood made, and little heat generated in the system; the body must, therefore, be kept warm by outside appliances or most of the food eaten will be used up for fuel, and very little will remain for building up tissue and restoring strength. An entire casing of silk or flannel from wrists to ankles, with woollen stockings, calf-skin boots, etc., would save many a delicate dyspeptic from the grave.

Many a woman ruins her own health and renders herself unable to transmit stamina to her offspring, by improper modes of dressing. She not only pinches her waist thus destroying her power to make good blood, but she goes with one or at most two thicknesses of calico over her arms in the house, and an unlined sack out of doors, even in cold weather, while her stout, full-blooded husband wears his flannel, his shirt-sleeve, heavy cloth coat-sleeve with its lining, and, when out of doors in cold weather, a heavy overcoat outside of all;—these women say they "do not feel cold," but this is because the body may become habituated to almost anything, even though it sap the life-blood drop by drop.

Tight shoes and tight elastics impede the circulation, prevent the blood from flowing back from the extremities to be purified, and thus do much harm. Every muscle, and nerve, and vessel should have free, untrammelled play.

Evacuations.—Prompt attention should be paid on the first intimation that the bladder or bowels need relief. Even a few moments delay will, in some cases, produce a strong reverse action, or a severe contraction which renders an immediate discharge impossible. The mass of impurities remaining in the system, causes distension of the delicate membranes, and lessens their power to act in the future.

SPECIAL TREATMENT.

When the suffering from dpspeptic symptoms is severe, special treatment may sometimes be called for; the following directions, if incorporated into the daily life, and faithfully followed, will aid materially in the restoration of health.

For Weight or Fullness.—This feeling is relieved by rubbing and gentle percussion over the stomach and liver; a cool compress covered with spongio, may be applied whenever the oppression is felt; hot fomentations, and the drinking of warm water, or the sipping of very hot water, will also afford relief.

For Emptiness or Sinking.—This sensation is relieved by sipping cold water or eating bits of ice; by rubbings and manipulations in the region of the stomach and heart; also by the compress, either hot or cold as is most agreeable. Pressure upon the stomach will sometimes give temporary relief.

For Pain in the Stomach, Spasm of the Stomach, Gastralgia, and Gastrodynia.—Fomentations as hot as can be borne should be applied for a half hour, followed by a mustard plaster for five or ten minutes, and this, by tepid sponging, and the wet compress; sipping of hot water; also a hot sitz bath and hot foot bath for twenty minutes or more. When the pain is dependent upon nervous conditions, warm applications to the head, and to the spine between the shoulder-blades, will soothe and calm the irritated nerves.

For Acidity or Heartburn.—Drink freely of tepid or hot water; apply hot fomentations and compresses in the region of the stomach and liver. Soda and other alkalies are constantly resorted to in these difficulties; the relief obtained from them is only temporary, however, and their use is always attended with danger, for they weaken, deaden, and, in some instances, utterly destroy portions of the lining membrane of the stomach, causing ulceration and other organic diseases.

FOR PYROSIS OR WATERBRASH.—Swallowing bits of ice is beneficial. When ice does not relieve, sips of very hot water may be tried. A copious enema will often give relief, especially if the patient is costive. If pain is present, the treatment for pain should be pursued. Fomentations and compresses may be applied.

FOR VOMITING.—When there is offending matter in the stomach vomiting should be encouraged by drinking tepid water, goblet after goblet, as rapidly as can be swallowed, till a quart, or even two quarts have been drunk. This will usually clear the stomach; but if not, it will dilute the offending matters, so that much will be absorbed and pass off either by the kidneys or bowels. Very hot water, sipped little by little, will often allay vomiting. Bits of ice chewed and swallowed will sometimes afford entire relief, and it may be taken whenever the patient pleases.

In cases of continued vomiting, give the patient only that kind and quantity of food which can be retained. Milk contains all the elements of nutrition, and is more readily absorbed than solid food; thin gruels of rice flour, corn-starch, or farina, may be given—only one spoonful at a time if the stomach can retain no more; This may be given once an hour, or once in half an hour, if the stomach receives it well. Injections to the bowels of half a cup or more of thin broth or thin gruel, strained through fine muslin, or half a cup of milk and water,—with a table-spoonful of lime-water to prevent its curdling—given once or twice a day, will supply nutriment to the system without taxing the stomach. Beef-juice, obtained by soaking half a pound of lean beef, for an hour, in half a pint of warm water—not allowed to boil—and administered as an injection, will furnish a good degree of nutriment. Fomentations as hot as can possibly be borne may be placed over the stomach,the folded flannel should be about four inches wide and six long and be dipped in boiling water, also warm fomentations all over the bowels, alternated with cool or cold compresses if the heat alone does not relieve. Vomiting, due to the presence of bile in the stomach, is often relieved by lemon-juice. Strict attention should be paid to the bowels, which must be kept free by injections, if necessary. Perfect rest and quiet, mental as well as physical, should be enjoined.

FOR REGURGITATION.—Careful mastication, and eating slowly, of simple food, in small quantities, will generally overcome this difficulty. The rule for quantity is, as in vomiting, keep within the limits of the power to retain, for what is eaten and not digested does only and always harm. An hour or two of perfect rest after eating is beneficial.

FOR FLATULENCE.—Sips of hot water; cool compresses over the stomach; hot fomentations over the stomach and liver, or just between and below the shoulder-blades; compresses, either hot or cool, over the bowels if the gas is in the intestines; percussion, shaking, and vibrating, in the region of the stomach,—gentle, if the patient is feeble, and more severe if he is strong.—The patient himself, by writhing, twisting, and throwing his arms about, may accomplish much towards gaining relief. The warm aromatics, such as peppermint, calamus or sweet-flag, caraway, etc., are in high repute as remedies for flatulence; and they do really check the fermentation of food in the stomach, and also excite muscular action and thus expel the flatus. The relief they afford, therefore, is sometimes very marked; yet it is only temporary; and each dose weakens the coats of the stomach and digestive canal, rendering them less able to perform their work. The custom of dosing for flatulence, in infancy, is almost universal and attended with much harm.

For Constipation.—For a patient who has a medium degree of strength, the following directions, faithfully followed, will be almost sure to afford relief. A tepid sitz bath for twenty minutes every day, three hours after breakfast, kneading and rubbing the bowels upward and from side to side while in the water; two or three times a week, this sitz bath should be preceded by hot fomentations over the entire abdomen, for twenty or thirty minutes; the wet girdle, worn every night around the stomach, liver, and bowels. Make the effort to secure a passage each morning half an hour after breakfast; rub and knead the bowels, or place the finger ends of both hands on the abdomen just in the right groin and make gentle, steady pressure upward to the ribs, thence across the upper part of the abdomen, and down the left side, making deep, steady pressure as you descend to the pelvic cavity, where the fingers should remain pressing deep for ten or fifteen seconds; then, after resting a few seconds, repeat the process. Continue this for ten or twenty minutes either sitting, or lying with the legs drawn up so as to relax the abdominal muscles. If all these efforts prove unsuccessful, secure a passage every other day by an injection of water at about 85° to 90°. It is well to inject half a pint and let it remain as long as possible; if this fails to produce a discharge, inject another pint, or even a quart, and let it be retained as long as may be. Sometimes when the feces have become impacted by lying for weeks in the colon, they may be softened by using as an injection, a table-spoonful of sweet oil and a tea-spoonful of beef's gall in half a pint of warm water.

A small injection of half a cup of cold water taken on retiring at night, to be retained, will strengthen the lower part of the bowels and aid in bringing about a natural condition. Sometimes a patient has not power to retain even a small injection, and in this case an attendant should assist by holding the parts firmly together, and, at the same time, make gentle pressure. If the hips are elevated, it will be more easily retained. Manipulations over the stomach, liver, and bowels, as directed under "Movement Cure," will aid materially in overcoming constipation. Pouring cool water upon the lower part of the spine for eight or ten minutes each day, or alternating with warm, will aid in arousing action. Deep breathing, frequently repeated, in pure air, is often more efficacious than all other means combined.

Constipation arising from sympathy with local difficulties can be overcome only by removing those difficulties. Coarse bread, a saucer of Graham, or oatmeal, mush, with stewed fruit for breakfast and supper, are the best preventives of, and remedies for, constipation; but they will never remove it when it is due to inflamed and ulcerated stomach. I have had patients troubled with most obstinate constipation, who were living entirely on coarse food because that was "more opening," yet no good effect was produced; but, by taking away everything coarse and harsh that could possibly irritate the inflamed stomach, and giving only fine flour bread, or corn-starch, or rice flour, or tapioca, daily natural discharges have been secured, within a week.

FOR DIARRHEA.—Diarrhea in most instances carries away effete matters which, if allowed to remain, might cause severe illness and, perhaps, death. It should never be suddenly and violently arrested, for when this is done, not only are the impurities retained in the system but a period of obstinate constipation is almost sure to follow.

At the first indication of diarrhea the quantity of food should be reduced to the minimum, and the quality should be of the simplest. A complete fast for one day, or perhaps two, is often the only treatment required. Sitz baths, of fifteen or twenty minutes duration, as cool as can be and not cause chilliness, may be given two or three times a day. Compresses, either cool or warm as is most agreeable, may be worn over the bowels, during the day, being changed as often as desired; the wet girdle around the bowels at night; a slight injection of cool water after each evacuation; the patient should keep perfectly quiet and in bed.

In chronic cases, where the strength is reduced so as to make active water treatment inadmissible, the patient must be kept free from anxiety, and lying down much of the time. Hot fomentations over the bowels for an hour every other day; tepid compresses most of the time; one sitz bath of fifteen minutes duration, at 85°, each day; a warm foot bath for five minutes each night on retiring; and an injection of half a cup of cool water twice a day after evacuations. The diet should consist of boiled milk alone, taken when cooled; a half pint at a meal three times a day is the maximum quantity for an adult;—not more than a pint at the three meals for a child. Sleep as much as possible. As the diarrhea decreases, a little rice flour, or wheat flour, baked in a slow oven to a light fawn color, may be boiled with the milk. No other food should be taken until the bowels recover their natural tone.

For Piles or Hemorrhoids.—Bathing the parts after each movement of the bowels and pressing the tumors back, as high as possible, into the rectum—oiling the hand, or using soft tissue paper to prevent irritating—will go far toward preventing severe pain. Cool or hot sitz baths, accompanied by hot foot baths will relieve the suffering; so also will sitting for a minute or two in cool, or cold water, not more than an inch or two in depth, several times a day. The tumors are sometimes removed with the knife or ligature or by the use of caustics. This is seldom necessary, however, when the diet is properly regulated, and hydropathic treatment pursued; by restoring the liver and bowels to healthy action, piles can be effectually cured, while cutting away will not always accomplish this result.

For Cephalalgia or Headache.—This accompaniment of dyspepsia can be entirely overcome by means of the general treatment for dyspepsia. A water emetic—given as directed for vomiting—will generally relieve when there is nausea. Perfect quiet and rest in bed should be enjoined. A hot foot bath, with fomentations to the stomach, will be beneficial. Free perspiration is desirable; for, the pores of the skin being opened, the impurities which produce the sickness will pass away. Sips of very hot water, or free drinking of warm water, without vomiting, will often afford relief; so also will hot head baths. Turkish Baths, Electric Baths, and wet sheet Packs, are indicated in this disease.

For Hypochondria.—This terrible malady can be cured only by a thorough course of constitutional treatment, and attention to the general health. It may be relieved by compresses upon the stomach and chest, by rubbing, kneading, and percussions, all over the body, but especially in the region of the stomach and liver; by deep inspirations of pure, fresh air; and by diverting the mind and thoughts. Hot foot baths, cool, tepid, or warm, sitz baths, fomentations, etc., with much brisk rubbing will change the current of the blood and aid in removing the sad condition. A constant and vigorous action of the skin is essential in this difficulty and on this account the Turkish Bath is of the first importance as a curative agent. The Lifting Cure and Electricity also facilitate recovery.

Dyspepsia is not a disease of rapid growth, nor can it be speedily removed. Every bad habit, every thought, and feeling, and action, that have tended to induce it, must be changed or laid aside. There can be no cure while the cause remains active; nor can there ever be a cure in which the patient shall be privileged to return to bad habits.

Patients often ask if they will ever be well enough to eat this or that, or thus and so; ever be well enough to do such and such things; "to wear tight dresses," or "be out late at night,"—the very things that have caused the present diseased conditions—and I tell them, No! Just as well might it be asked by one whose hand has been burned, "will it ever be well enough to admit of my putting it in the fire with impunity?" Just as well might a person ask, "shall I ever be good enough to lie and steal without punishment?" God never made the man or woman who was well enough to admit of a violation of his laws in their bodies, any more than he makes them *good enough* to tamper with his *spiritual laws;* and even if he who violates a physical law does not feel the penalty himself, his children and his children's children will; for truly, "the sins of the parents," bodily as well as spiritual, "are visited upon the children unto the third and fourth generation." If "the fathers eat sour grapes the children's teeth" will be "set on edge."

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